Electrical Review

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Relationship Between Advertising and Merchandising

Thorough Knowledge of Appliances, Preparation of the Right Kind of Copy, Sufficient Amount of Space and an Untiring Persistency Are Necessity to Successful Advertising Results

By TOM J. CASEY

Vice-President, Hurley Machine Co., Chicago.

These Will Make HER Happy
IMAGINE how she'll thank you Christmas morning when you surprise her with a nice electric toaster, or an iron, percolator, portable radiator, chafing dish or some other wonderful electrical gift.
You'll feel well repaid for thinking of such a present because she has seen and heard so much about these electrical things in recent years.
Come in, look around—don't buy if you just come in and see what we have in our establishment. We'll be glad if you do not find what you want.
(This space for any other statement and for name and address.)
In Our Electric Appliance Department
We are always ready to show you the latest in labor saving devices, washing machine and vacuum cleaner; the convenient iron, toaster, grill; the comfortable fan and portable radiator.
We have the universally used C-H Seventy Fifty Switches for new appliances and for attachment to the cords of appliances you have at home.
(Dealer's Name and Address)
Motor Installations Promptly Made
Put the responsibility of the installation of your motors, motor starters and controllers onto our shoulders.
Our organization is at all times equipped to take care of all electrical installation work, wiring of new and old buildings, additional lighting work, etc.
Our telephone number is given below. Call us up
(Dealer's Name and Address)
(Telephone Number)
You Can Increase Xmas Appliance Sales by doing Newspaper Advertising
We will furnish these ad electros free. Order them on the enclosed Dealer Help Request Blank, Pub. 497.
A lithographed—colored window trim will be included if you wish it.
Christmas Morning Smile Producers
When she opens the package you give her Christmas morning she will know you have remembered her with something substantial.
And,—Oh! Boy!—when she sees that fine toaster, percolator, iron—the smile will be worth ten times the cost.
We have a big line of Electric Smile Producers,—but don't wait till the last minute—they are selling fast this year.
(Dealer's name and address should appear in this space in big type.)

Samples of Electrotyped Advertisements Supplied by Manufacturers to Dealers for Use in Local Newspapers.—In Each Case a Mortised Space Is Left for the Dealer's Name.

On very few of our prominent American streets is there anything more striking than Chicago's new Wrigley building, particularly at night when the soft glow of the floodlight reveals its stately majesty to the thousands who nightly throng Michigan boulevard. It has well been called a fitting monument to the business ability of William Wrigley, but in my opinion it might better be styled a monument to Wrigley's appreciation of the relationship between advertising and merchandising, for it was mainly consistent, judicious advertising of his product that enabled Wrigley to amass a fortune which made possible this beautiful building which is today one of the most interesting sights on the "Fifth Avenue of the West."

What a lesson we have here for our electrical merchandisers! What positive proof of the value of intelligent, persistent advertising! For advertising, to be effective, must be done persistently. There is nothing original about this statement. It has probably been made every time advertising has been discussed, and undoubtedly every electrical merchant knows it to be a fact. But how have our electrical merchants carried out this idea? We are all willing to assume that advertising is one of the fundamentals of merchandising, but it is indeed a rare thing to find an electrical dealer with a definite program of advertising, and it is even more rare to find one who spends any certain percentage of his volume of business in the newspapers.

I have discussed this subject with electrical dealers a great many times and I have frequently

been amazed at their lack of knowledge, For instance, an extremely large percentage of them could not even tell me the advertising rates of their local newspapers. The majority have seemed to feel that they were consistent advertisers, but an investigation has usually shown that instead of a carefully arranged advertising program they were merely running an occasional advertisement without any plan or system to follow, simply "putting an advertisement in the paper" every time the newspaper solicitor pressed them hard enough to sell them some space. One of the most common remarks made in these talks is something like this, "Well, we do a fair amount of advertising, but we never see much results from it." And this probably sums up the opinions of a very large portion of our electrical merchants—"We do a fair amount of advertising but we don't see much results."

Entertain your Work on the Porch

—Assisted by your Electrical Servants

Don't get overheated before you run into town, take your ELECTRICAL servants out on the porch and iron your white waists and skirts in comfort, and keep your engagement for lunch feeling cool and refreshed—

Ironing in the fresh air used to be absolutely out of the question because the old sad-iron hated any kind of a breeze.

BUT NOW—there is nothing to stop you working in comfort if you use the ELECTRICAL WAY.

The recipe is—

Get an ELECTRIC FAN and an ELECTRIC IRON, add things to be ironed, turn on the switches and settle yourself to a really enjoyable morning's work.

Our Service Means—
Full Information
Courtesy
Prompt Deliveries
Satisfaction

(Your Name and Address)

Example of Advertisement Suggesting Use of Fan and Flatiron.

Right Kind of Advertising Will Produce Definite Results.

To get at the bottom of this very vital part of our business, let us make a little analysis of newspaper advertising as it applies to our electrical stores, and let us see if we can determine why we do not get the results we desire. This probably can be done best by carefully considering the following points: What is the function of newspaper advertising? Who writes your copy? What percentage of your volume of business is spent for advertising? How do you back up your advertising? How do you figure your returns?

The right kind of advertising performs a certain definite function, but the failure to understand this function, to know exactly what we seek to do, and to write our copy accordingly, has been mainly responsible for the idea in the minds of so many of our merchants that newspaper advertising does not produce satisfactory results.

The primary purpose of this publicity is *to bring people into the store.* It is *not* to sell your merchandise. Indirectly, of course, sales are the real object of all publicity, but it is a serious mistake to think that the reason for advertising is to make direct sales, unless you are selling your merchandise on a purely price basis, and then you can always appeal through the columns of the newspapers to the bargain hunting instincts of your customers. In the electrical industry, however, we rarely have the opportunity to go to the public with cut prices or special price inducements, because practically all of our merchandise is sold at a standard list price, and consequently we can seldom use this particular kind of copy.

Advertising, to Be Effective, Must Be Carefully Prepared.

There should be a definite purpose behind every advertisement and the writer should never lose sight of the fact that the one particular thing he seeks to do is to create a sufficient desire in the minds of the public to come into the store and see the articles that have been advertised.

While we continue to spend our money for newspaper space which we fill up with vain appeals to the public to buy our merchandise, and while we continue to judge the value of our advertising by the amount sold as a direct result of each advertisement, we must continue to regard our advertising as unprofitable. On the other hand, when we consider advertising purely as a means of bringing people into our stores and of laying a foundation upon which the proper sales methods may build sufficient interest to make actual sales, our viewpoint changes and good copy with this definite purpose behind it is bound to reflect itself in increased volume.

The first and most important part of the advertisement writer's job is to know exactly what he seeks to do through the medium he is using. And in the majority of our stores, who is this advertisement writer? Usually the proprietor of the store, or someone on the staff of the newspaper. In either case, in writing any particular advertisement, what preparation is made? Does the writer make a careful study of the article in his endeavor to determine what he can say about it that will be of greatest interest to the people who read his advertisement? The majority of electrical advertisements are conclusive proof that he does not. Yet, if we are going to look at this important work from a commonsense point of

view, would we not naturally conclude that this would be the best plan to follow? There are certain points about each appliance that we know will appeal to our customers. Why not list these points and then, either work up a series of advertisements in which one or two points will be emphasized in each advertisement, or pick out those which we feel will make the strongest appeal and build the advertisement around them?

In purchasing electrical appliances most of our customers are influenced by economy, convenience or artistic value. Sometimes it is only one of these points; more often it is a combination of at least two; but the main thing for the advertisement writer to consider is which of these points will make the strongest appeal to his customers. An analysis of the article itself, and the function it performs, will quickly show him whether he is to talk saving in time, labor or money, additional comfort and convenience, or make a direct appeal to the pride of his customers through featuring the artistic value of the article.

Laying Out of Advertisement a Most Essential Feature.

This is merely another way of saying that we should first decide what our customers would like to know about our merchandise and then tell it to them in a way that will leave a desire in their minds to get more information—which they can only secure by coming into the store where we have the opportunity to capitalize the interest created by the advertisement. Some of us make the mistake of saying too much, while others do not say enough. One advertisement is so filled with copy that it is a real job to read it, and the next one merely calls the attention of the readers —if there are any—to the fact that "Smith & Brown" are in the electrical business.

The best and most attractive advertisement is always the one with lots of "white space"—the advertisement that is easy to read. Don't think that because space costs money, every inch of it must be filled with copy. The advertisement is valuable only insofar as it is read, and the easier it is for people to read your copy the greater will be its efficiency. It is false economy of the worst kind to fill up newspaper space with a lot of words just because we feel that the space is expensive and we cannot afford to "waste" any of it.

Advertising has been best explained as "anything said or done which will put the store or the merchandise before the buying public in a favorable light." We can carry out this idea by using in our advertising the kind of copy that will build up good will; maintain a favorable attitude on the part of the public; impress upon the buyer the value of the appliances we sell, and create the desire to see these appliances.

It is needless to say that all merchants are not capable of writing advertisements which will produce these results. I confess that I am not an advertisement writer. I doubt if I could write good copy and I know positively that I cannot make a good layout; but, as Shakespeare puts it, "If to do were as easy as to know what were good to do, chapels had been churches, and poor men's cottages princes' palaces." The point I want to make is, I am in the same position as our electrical merchants. I may not be able to do it, but I know how it should be done, and every merchant who is worthy of the name will know how it should be done if he will make a careful study of the subject and will analyze the articles he wishes

Wrigley Building, Chicago, Fitting Monument to Results Obtained Through Advertising.

to advertise, with the one end in view of bringing out the points that will make the strongest appeal to his customers.

It is not necessary for our merchants to be advertisement writers. Every newspaper has someone on its staff who is capable of writing good copy, and if the merchant will only get in touch with this man, telling him the points that should be brought out, and then carefully criticising the layout and the copy after it has been submitted by the newspaper, he can vastly improve not only the advertising itself, but the results it produces.

Most Manufacturers Will Supply Retailers With Prepared Copy.

Most manufacturers of electrical appliances maintain advertising departments with competent men who welcome the opportunity to write copy for their customers. They supply cuts or mats for illustrations and the merchant who uses this copy will not go far wrong. Why should we depend upon ourselves to do work for which we know we are not fitted when we can get the assistance of people who make this their business, and who are continually seeking the opportunity to be helpful to us?

In discussions on advertising one of the questions most often asked is, "How much advertising should we do?" It is difficult to make a hard and fast rule on this point for any line of business, but the best authorities on this subject seem to be agreed that the ordinary electrical store should spend from 2% to 5% of its gross volume of business in newspaper advertising.

In considering this subject, which is of such vital importance to our success, we must remember always that in our advertising we must be *persistent*. We must advertise, but we must do it systematically, consistently and patiently. We should lay down a definite plan for a certain amount of advertising every week over a certain period, and we should not let anything interfere with the carrying out of this plan, unless it be something that will improve our original arrangement. And once this plan is started let us remember that our newspaper advertising must be given a certain amount of "support." The articles we advertise should be shown in the window with neatly lettered black-and-white cards containing further information designed to draw the customer into the store, and special attention should be given to the arrangement of these articles in the store itself so they can be shown to the best advantage when customers come in.

Not long ago, in one of the large cities in Ohio, I read an ironing machine advertisement in the morning paper. Shortly afterward, in passing the store of the advertiser, I stopped to look in the window to see how the advertisement was being "supported." There was no ironer in the window and, from the street, I could not see an ironer in the store, but the building was on a corner and as I passed the rear window, near the side door, I saw the machine in the back of the store covered by circulars of various kinds, a hat and coat on one end and a miscellaneous assortment of stuff on the lower part of the machine. To say the least, this was not backing up the advertisement. In fact, it was about the worst thing that could have been done, because customers brought into the store by the advertisement would immediately have seen that the machine could not be very popular and that there could not be much demand for it or it would have had a more prominent place in the store. The "support" given this advertisement was absolutely negative in every way.

Among the names of the world's great merchants, who ranks higher than John Wanamaker and Marshall Field? When Wanamaker started his famous Philadelphia store he laid out a definite advertising plan by which for the first week he would spend each day in newspaper advertising the entire receipts of the previous day. It took courage to do this and it cost an enormous amount of money, but he stuck to it and thereby laid the foundation of one of the world's greatest stores.

There is hardly an intelligent man or woman in the United States who has not heard of Marshall Field & Co. of Chicago. It is unquestionably one of the best known stores in America and is generally considered the greatest of all our department stores. Even the boys on the street in Chicago know "Marshall Fields," and there is hardly a woman in the city who has not been in this wonderful store at some time or another. Probably the majority of Chicago women spend some of their money in this store each year, and yet today, after 56 yrs. of successful merchandising, with a wonderful prestige not only in Chicago, but throughout the country, Marshall Field & Co. is using over 2,500,000 lines, or over 1000 pages, each year in the Chicago papers, and is spending annually approximately $1,000,000 to maintain its good will, to keep up the interest of the buying public in its store and to see that the people with money to spend will not have an opportunity to forget "Fields."

It would be folly to suggest to any electrical concern in America that they do such an enormous amount of advertising as this, but the general plan used by Fields, Wanamakers and all the other great merchandisers should be followed on a smaller scale by every electrical merchant in this country who has the same desire for success that impelled both Wanamaker and Field to build up the wonderful institutions that today bear their names.

A thorough knowledge of the merchandise, the right kind of copy, a sufficient amount of space and untiring persistency, can only mean success in advertising.

INDIAN CONSULATE DESIRES TRADE LITERATURE.

An interesting feature of trade relations between the United States and India in recent years has been the interest shown at Calcutta in American trade journals of various kinds.

While this interest is hardly felt to be sufficiently extended to warrant a campaign for subscriptions in that territory, yet there does exist a healthy demand for information supplied by our trade publications. To meet this demand Alexander W. Weddell, American consul-general at Calcutta, has established a catalog and reading room where trade publications and advertising matter sent out by American firms and individuals are accessible to the public. This material should be addressed: Reading Room, American Consulate General, Calcutta, India.

Shorter Cuts for Fixture Dealers to Surer Sales

Electrical Contractors Find More Profits in Closing Wiring Contracts by Showing Handsomely Prepared Plates of Lighting Units and Interesting the Prospects in Appropriate Fixtures

By WILIAM B. EASTWOOD

Retailing lighting fixtures without the necessity of carrying a large assortment of fixtures in stock is a plan which has been evolved by a manufacturer of lighting units in Toledo, O. While the plan and equipment appears to be best adapted to the selling of fixtures from house to house, it may also be most conveniently used in an electrical store supplemental to a limited stock of designs, thus giving the customer an opportunity of selecting from a complete stock, and the dealer a broader field of operation and more profit.

The outfit consists of a booklet entitled "Shorter Cuts to Surer Sales," a very comprehensive "Merchandising Manual" and an "Exhibit Portfolio Service." By reading over the first booklet and carefully studying the second, the contractor-dealer should be in a position to take the last named outfit and meet the exact requirements of any size or type of house or purse. With this plan it is possible for the contractor to stimulate the closing of many a wiring contract by creating interest first in certain types of desirable fixtures.

"You know, of course, that most of the wiring jobs for residences are closed in the evening," said T. E. Donoher, secretary of The Reidon Co., whose company has originated this new kind of selling plan, "yet the average electrical contractor talks wiring only. He makes no effort to first create a desire for high-class lighting fixtures. To make the most of the opportunity the contractor should first present the prospective customer a complete, harmonious lighting fixture plan. He should sell the result of the wiring—not the wiring alone. This is made possible with our exclusive 'Exhibit Portfolio Service,' showing the fixtures in handsome, true-to-life illustrations, each illustration showing a single design of fixture on a separate plate in its natural tints."

When the electrical contractor calls upon a prospective customer for the purpose of interesting him in wiring, or to close a contract which he has previously talked over, he takes along with him the portfolio containing the handsomely mounted illustrations of the line of fixtures, with which are sample specimens in 2-tone finish effect, also plates illustrating the glassware in natural color tints. By showing these to the various members of the family he increases their desire for some of the splendid benefits to be had with electric wiring. In addition to selling the wiring job, he is also selling—with scarcely no additional effort—a set of lighting fixtures.

Lighting fixtures constitute one of the most essential features entering into the lending of beauty, comfort and cheer to the modern home. In fact, so important is this feature that, after daylight vanishes, all other decorative features in the home become totally dependent upon the lighting fixtures for their beauty of effect, no matter how massive or costly each of these other appointments might be. Yet, strange to say, very few home owners have had this thought forcibly brought home to them.

Quite on the contrary, it has been found as a result of a careful and exhaustive survey of the field that comparatively few dealers appreciate the importance of quality and art in lighting fixtures—while little or no effort has been made by the lighting fixture industry to take the public into its confidence. The public, being entirely unconscious of the great importance of quality lighting fixtures, has been led to believe that "any old thing" is good enough—and that this is the logical phase of their home furnishings upon which they could skimp and save a little money.

Fixture Men Might Take Lesson From Salesmen of Other Furnishings.

Summed up, to the average mind "lighting fixtures are lighting fixtures" in the same sense as "overalls are overalls." Most "any old thing" is considered good enough. Price has been the main consideration. Yet, lighting fixtures are the feature that will either permanently make or mar the beauty, comfort and cheer of the home. Dealers have been compelled to outstrive one another in the slashing of prices and profit margins. Consumers, scenting this situation, are "sitting tight" and driving hard bargains.

Quite unlike the lighting fixture dealer, the furniture, rug, drapery, picture, mantel and tile, talking machine, electric sweeper and washing machine salesmen are striving to build up the standard of buying in the home. They do not accept the idea that "any old thing is good enough." Consumers, appreciating the value of quality in their home furnishings, are lavishing more and more money upon the beautifying of their homes. Why then—armed with the feature upon which all of the other decorative details of the home depend after sundown—should the lighting fixture dealer longer shrink from taking the commanding position that beckons to him?

Many fixture dealers have at various times tried the selling of a fixture to a customer from a catalog after finding that the sample units he carried in stock did not quite appeal. Where the catalog carried the list price beneath the picture of each unit—and there were usually several units shown on one page—some confusion would result and the prospect was prone to linger too long on the question of price. Catalog list prices beneath

illustrations serve to bring up price comparison, promote price cutting, causing a lower standard of buying through giving the question of price preference over that of quality and a desire for something better than the average, and usually putting the prospect in a mood to "shop around" before placing an order.

Not one dealer in a thousand can afford to stock all the fixtures shown in the average fixture catalog. This makes his problem of what to stock a hopeless task and, should one of his customers see his catalogs it invariably happens that the selection made by that customer from the catalog is one which does not happen to be in stock. When the customer learns that the fixture he fancies is not in stock, he usually asks that it be ordered and refuses to select from the stock on hand. In the case of a particular customer, the usual catalog lends the impression of stock material and, as he desires something exclusive, he hesitates to place an order.

Customers Expect Dealer to Select Lighting Fixtures for Them.

The prospective buyer of today expects the dealer to show him which fixtures to buy and does not want to go through the ordeal of leafing over an album of mixed designs in making a selection for his home. To emphasize the point of general ignorance on the part of the public in regard to fixtures and lamps, the following quotation is given from the Society for Electrical Development's *Monthly Sales Service*:

"It is surprising and at the same time regrettable that so many dealers handling lamps appear to labor under the misconception that they are dealing with some commodity with which the purchaser is so familiar that he knows exactly what he wants. These unfortunates—for they are unfortunate in that they daily miss opportunities of making sales which give satisfaction and win good-will—deal with lamps much as a baker might market his bread. The baker needs to know whether his customer wishes a large or small loaf: white, brown, or rye, but otherwise he can be content with supplying the loaf or loaves requested and rest reasonably certain that he has successfully and satisfactorily consummated his sale. If the bread is of satisfactory quality, his price right and his shop conveniently located, he can usually count on his customer returning when he is again in need of bread. For the lamp dealer to be satisfied with any similar system or policy should be quite inexcusable if he assumes his responsibilities to his business and to the uninformed public.

"This tirade is not intended as an arraignment of the contractor-dealer who is not continually seeking additional business in the line of installing extra outlets wherever advisable and searching for opportunities of making extensions to existing installations for additional lights or for facilities for the convenient use of appliances. It is directed rather against the dealer selling lamps over the counter for use in the fixtures and portables ordinarily found in use in the average house; for example, against the dealer who could not specify unhesitatingly the right size and type of lamp to install in a single ceiling outlet unit in a room approximately 12 ft. wide and 15 ft. long."

Dealer methods of maintaining showrooms require a large investment and involve a heavy overhead expense. Declining prices and constantly changing styles keep the dealer in danger of heavy losses. Then, too, purchasing fixtures from various manufacturers cause the dealer to overbuy—in many cases resulting in credit difficulties and bankruptcy—besides giving him a display made up of "a little bit of everything, but not much of anything." In short, he is seldom if ever equipped with a complete set of units of any one line, yet he should be prepared to instantly meet any such emergency. Unavoidable breakage causes unanticipated losses. Other losses are developed by the fixtures becoming shop-worn or flyspecked.

Fixture dealers who have tried the house-to-house method of calling with the Reidon exhibit portfolio, report that they have found many customers who cannot conveniently visit the showroom of the dealer. Of course it is out of the question for the dealer to load up a lot of sample fixtures and take them to some residence for the householder to select from. Other fixture dealers say they have great difficulty in securing competent salesmen who can sell in the showroom, thus making it necessary for the proprietor to stay in the store when he should be out developing valuable business.

Briefly explained, the Reidon exhibit portfolio consists of two handsome leatherette cases containing a set of more than 160 exquisite designs which are illustrated individually—one to each plate—on heavy cameo colored plates, 7 by 10 ins., against a strikingly rich, satin-like black background. Each plate not only contains a graphic picturization of each design but, on the back of each subject is to be found a concise description of the fixture so that the dealer and customer are both provided with ample and accurate information that entirely eliminates all guesswork and doubt as to what the manufacturer will furnish. These 160 designs, comprising a very complete line of well-matched lighting units, are properly classified and indexed so that the dealer or salesman can refer to the portfolio and instantly select the exact design he desires to present to his prospective customer. He is in a position to thus quickly and effectively present a complete and individual lighting scheme for any size of job or purse.

An inspection of the Reidon outfit discloses that there is included a set of handsome glassware plates in natural colors. There is also included a handy little packet—that would about fit a vest pocket—containing specimens of each of the distinctive 2-tone finishes, thus enabling the dealer or salesman to give his prospective customer a very accurate impression of the manner in which the metal parts of the fixtures are finished. The price schedule is furnished separately so that the question of price may not be intruded before the customer has practically decided upon the fixtures best suited to the surroundings where they will be installed.

While the practice of carrying samples of fixtures in stock and on display in stores that have room for them will probably never go out of fashion, it is safe to say that dealers who are in possession of the Reidon outfit will be able to sell many more fixtures at a better profit, and will be able to close more wiring contracts by following the Reidon method.

Building Bigger Business Through Sales of Fan Equipment

Outdoor Exercises and Motoring Increase Necessity for Better Ventilated Homes—Patronage Increased by Proper Ventilation in Stores, Theaters, Restaurants and All Other Public Places

By C. A. EDDY
American Blower Co., Detroit.

Popularity of a subject has much to do with the sale of an article related to that subject. The thing may be popular and still not be necessary, but there is no one thing of which we know that is more popular, as well as necessary, than right ventilation. Good ventilation is so directly connected with health that most people are interested in it. This interest is brought about to a large extent by the growing popularity of outdoor sports which includes, of course, the wide use of the automobile. In other words, the American people are becoming educated to the real pleasure of the outdoors and the advantages of outdoor air.

When people who have become lovers of the outdoors are compelled to stay indoors for any length of time they instinctively turn to the method which will supply fresh air indoors. That is why the subject of ventilation is such a big and important one at this time. Visit any of the better schools and it will be noted that the teachers in particular have definite ideas on this question of ventilation. They are not unanimous as to the best way of getting fresh air into the school room, but all of them are insistent on the fact that fresh air is needed if pupils are to remain healthy and strong. They talk to the pupils about the necessity for fresh air in the home. Naturally the pupils talk about these things to their parents so that there is hardly a home with children of school age where the subject of ventilation is not discussed to some extent.

Larger Patronage Goes Where There Is Comfort Through Ventilation.

If there is any one thing that will tend to keep the buyers out of a store it is stuffy, poorly ventilated sales rooms. Go into a large department store, for instance, and you can immediately sense certain advantages or disadvantages in that store. For instance, the fact of prices and quality being equal, the store with an abundance of pure, fresh air circulating throughout the interior has by far the better opportunity of getting and holding trade. One of the big things in a department store is the fact that people will come in with the intention of buying one or two articles. If it is comfortable inside the average woman will take more time to look around and oftentimes will buy much more than she had first planned.

Where the air is warm and close, people come

Public Dining Room Whose Greatest Attraction for a Large Patronage Is the "Ventura" Fan Installation Which Constantly Provides Clean, Fresh Air.

Fumes and Gases Are Eliminated From This Engraving Plant by a "Ventura" Fan.

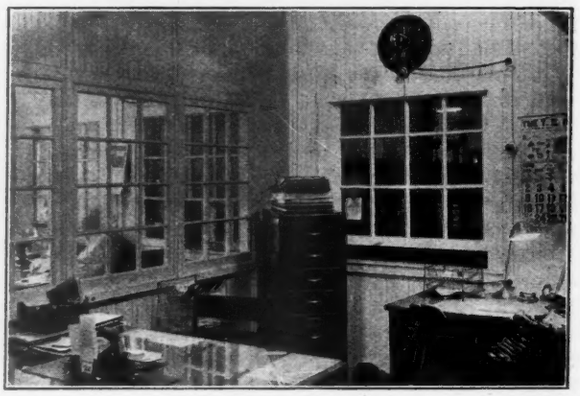
into the store, get what they had in mind and get out as quickly as possible. The store that is not equipped to supply fresh, clear air to all of its departments does not stand on the same footing with the better ventilated store. For the lack of an expenditure, in many cases of only a few hundred dollars, some stores pass up the opportunity of getting thousands in profits.

If there is any one place where right ventilation is absolutely necessary it is in the theater. The great growth of the moving picture industry is due solely to the public's appetite for reasonably priced entertainment, but no matter what the price or how fond the average person is of moving pictures, he will not for long patronize the theater which is stuffy and uncomfortably warm. No matter how good the picture or how great the attraction, health and comfort are rated higher than these, and the theater owner who is not alive to these facts cannot begin to get the profit from his theater that would be the case if he were absolutely certain that his place was properly ventilated and that people were comfortable while there.

Exhaustion of Heated and Fume-Laden Air From Oven Room of Bakery.

The above facts bring us to the advantages which the sale of ventilating equipment means to the electrical contractor and central station man. The subject of ventilation is so large that it is necessary for the dealer to give considerable thought to it, but there is such an opportunity at this time to work with the manufacturers of ventilating equipment that the electrical contractor or central station man should not overlook the opportunity of going after this profitable business. In a great number of instances easily installed installations are the rule. In many places a medium-sized fan which can be used for exhausting vitiated air or blowing in fresh air can be easily and conveniently installed with profit to both user and contractor.

The average small restaurant should have good ventilation by all means. It is believed that the cause for failures of a great many otherwise good small restaurants is due to the fact that they do not take ample precautions to keep their place properly ventilated. The fastidious persons will not willingly patronize the restaurant where the windows are covered with steam and a conglomeration of odors greet him as he opens the front door. He may eat at such a place from necessity,



Atmosphere in This Office Is Kept Pure by a "Ventura" Fan Installation.

but if he has any choice he is going to seek a place to eat where the air is fresh and clear. When the fact is considered that, at comparatively small expense, any restaurant can be properly ventilated it is certainly strange that at this time such a wide field still exists for the installation of fan equipment.

Bowling Alleys Are Prospects for Installation of Ventilating Systems.

Another place where good ventilation properly supplied is necessary is in a bowling alley. Such a place having a large number of alleys is an attractive field for ventilating equipment. Large numbers of men congregate there, particularly in the evenings. Unless it is properly ventilated the air is soon filled with smoke and it becomes uncomfortably warm and stagnant. There is a great disadvantage in depending upon open window ventilation, because a man who is overheated from the exertion of bowling, and is standing around in his shirt sleeves in front of an open window, is risking his health. On the other hand, the properly ventilated alley attracts the larger and better class of people. Men will come to such a place because they can bowl in comfort and

they do not suffer from the after effects. Many times an installation of the right kind of fan would keep the air clear and fresh at an expense which should not be considered in proportion to the benefits derived.

Prominent magazines are giving a great deal of space to this subject of ventilation. Is it any wonder then, that people are greatly interested and are giving considerable thought to whether a place is poorly ventilated or whether it has sufficient fresh air for health? *Literary Digest* devotes considerable of its space in a number of issues during the year to the reprinting of extracts from prominent papers on the subject of ventilation. A conservative estimate of the number of people reading such articles would run into the millions, and if the electrical contractor and central station manager would take advantage of public interest they could find many added opportunities for the sale of ventilating equipment.

Suggested Methods of Finding and Handling Ventilator Business.

How is it possible to secure information along these lines or to get in touch with places where fan equipment could be installed? This business must be handled and gone after in the same vigorous manner as is necessary in going after anything else where sales are involved. It is easier for the contractor to sell ventilating equipment now than it was in the past, due to this process of education and the demand of people for better conditions in the places in which they trade.

The electrical contractor can use a good sales letter to advantage in getting a line on the places where fans could be installed. A letter along the following lines would probably bring some inquiries that would result in leads which could be profitably followed:

Dear Sir:

You are undoubtedly interested in anything that will bring people into your place of business and keep them comfortable while they are trading with you. The greater their comfort, the more sales you will make, and after all, that is the big thing to consider, isn't it?

The store that is properly ventilated has a big advantage over the improperly ventilated place. People are thinking more about the necessity for fresh, clear air than ever before. If the air is impure and close in your store they will notice it and talk about it. You may not realize it, but instinctively, other things being equal, they will pick another place to shop. With the proper ventilation you know they will be comfortable, at least. The investment of a few dollars today may result in profits of thousands for you tomorrow.

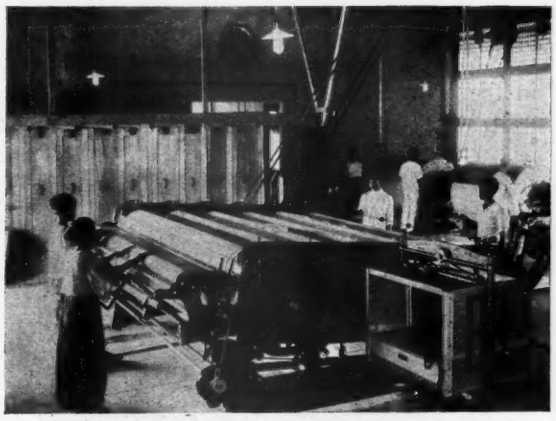
The purpose of this letter is simply to bring your attention to the fact that we are specialists in the installation of fans for ventilation, and we would be glad to work with you on anything along this line in which you are interested.

Will you give us the opportunity of talking this over further with you?

Yours truly,

.....

Such a letter should be sent to a select list of retail store owners. If a letter was going to owners of restaurants, it should have a different appeal and should bring out the fact that the human appetite is affected one way or another, according to the surroundings in a restaurant, and the odors, or the lack of them. In other words, if the restaurant owner expects to sell his patrons plenty of food and expects them to enjoy this food he must provide the kind of ventilation which will keep the air clean and fresh.



Installation of a "Ventura" Fan in a Laundry for Comfort of Employes.

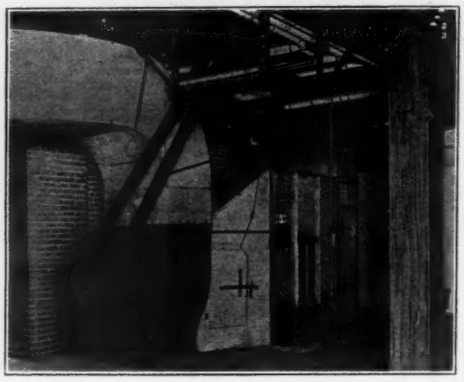
Many owners of stores, restaurants, etc., have given this question little thought. Unless somebody shows them where it is to their advantage to make a point of having the right kind of ventilation, it may never occur to them that, aside from the necessary complying with the law in regard to kitchen ventilation, that anything else would be necessary. Some of the owners and managers of restaurants, in particular, are not the easiest kind of men to talk with on a subject such as ventilation. At the same time there is a large enough variety of men who have the business instinct to realize that if they are overlooking an opportunity to get more patronage, they had better get busy and do whatever is necessary to remedy conditions. There is no question but that the well ventilated business house has by all odds a great advantage over the poorly ventilated place.

Large Field for Installation of Fans in Industrial Plants.

Aside from the businesses mentioned above, which may be considered as the retail trade, there is a great field for installations in industrial plants. The wideawake electrical contractor or central station manager can take a list of industrial plants, and upon calling on them, and making a trip through the factory with the superintendent, can suggest numberless places where better ventilation is needed. It is surprising to learn the great

Clean Air as Important in a Bank as in Other Places for Comfort of Employes and Patrons.

number of fan sales which can be made in such places. It will be surprising even to the contractor himself to realize what a field lies before him in the opportunities for getting profitable business, but it is necessary to cultivate this field and



"Sirocco" System of Heating, Ventilating, Purifying and Cooling.

to do some aggressive sales work if the business is to be secured.

Manufacturers are looking for those methods which will mean economy in the cost of operation. Increased efficiency comes from better ventilation and in a great number of instances the installation of a few fans in certain places in the factory will, due to better working conditions, speed up production and increase profits.

Better ventilation means, too, that men are on the job to a greater extent and that they have a better feeling toward the company employing them. One of the important things in a factory, which helps toward better relations of the employer and employe, is better working conditions and a factory which is properly ventilated will retain a better class of workmen and turn out a better product than a poorly ventilated factory. With these thoughts in mind the electrical contractor and central station man could follow up

"Sirocco" System of Heating and Ventilating for Industrial Buildings.

prospects in this field. There is a big opportunity for sales along these lines, and in many instances it only requires an investigation and the placing of facts and figures before the executive to get the business.

In the cigar factory fans are used to bring in fresh air and to keep the air clear of dust which would otherwise affect the workers. In a steam laundry a system of fan ventilation is nowadays a necessity. Without an adequate supply of fresh air the laundry would become unbearably hot. Without a ventilating system which would clear the air of steam and soap fumes workers would soon become dissatisfied and refuse to work in such an atmosphere.

Engine rooms of manufacturing plants are usually insufferably warm unless properly ventilated. A wall fan located in some part of the room either draws out hot air or blows in fresh, cool air. Many plant superintendents think that, because it has been the custom in the past to keep the engine room at an uncomfortable temperature, such conditions can remain unchanged. Today good ventilation is as necessary to good working conditions in the engine room as anywhere else.

In an office where a large number of people are congregated it is especially necessary that the air be free from impurities. Open windows, with the danger of drafts and the inconvenience of a windy or stormy day, cannot be depended upon to furnish the proper amount of fresh air. Without a positive system of ventilation, such as fans, blowers, etc., the average office soon becomes unhealthy, efficiency suffers and results are not up to standard. The great number of offices in a large city, in which many people work, offer a splendid opportunity for sales of fans. Furthermore, this is a field which is only partly cultivated at the present time.

In the home, uses are being made of fans which were not thought of some time ago. As the warm-air furnace grows in popularity new methods are discovered for increasing its efficiency. As every furnace user knows, there are some cold, windy days when the furnace seems to be "asleep at the switch." Hard-to-heat rooms develop and only part of the rooms seem to be warm. With an electrically operated ventilating fan, plus an arrangement for guiding the air into the pipes, the heated air is boosted along through pipes to all parts of the house. The fan may be turned on or off at will and can be used as needed. It is easy to install, is compact, and is designed so that there is no obstruction to a full flow of air through the pipes. Such an arrangement, used in connection with warm air furnaces, is bound to increase in popularity. In fact, every furnace user is a prospect for such a fan.

There is practically an unlimited field for uses of fans. As the subject grows to still greater proportions the sales of this class of appliance will surely increase. While the uses of ventilating fans are mounting, so will the use of electric current jump still higher, all of which is of especial importance to the central station manager.

You press a button and electricity floods the room. Grandma had to wash the globes and trim the wicks of oil lamps. Her mother patiently made tallow candles, for progress had only begun to conquer the black night. You can count on your fingers the generations that have passed since France had a tax on windows and poor people spent their nights in darkness and foul air. When you are inclined to bay the moon too loudly, just consider the hardships you missed by not being born 200, 100 or even 50 yrs. ago.

Standard Accounting System for Contractor-Dealers

Members of Indiana State Association Electrical Contractors and Dealers, at Recent Meeting, Are Urged to Extend Use of System to Eliminate Risky Sales Methods and Possible Failure

By V. G. FULLMAN
Steel City Electric Co., Pittsburgh.

The statement that "a chain is no stronger than its weakest link" applies to the electrical industry as at present organized, and it was with the idea of strengthening one of the weak links that the Standard Contractors' Accounting System of the National Association of Electrical Contractors and Dealers was devised. The necessity for this accounting system may not be particularly apparent to the contractors and dealers who attend association meetings because the concerns are progressive and beyond criticism from a financial standpoint. But there are a large number of concerns (approximately 10,000) in the electrical industry that are, at one time or another, slow in meeting their financial obligations.

This represents about 40% to 50% of the concerns with whom members of the National Electrical Credit Association have had experience. This proportion is entirely too large, and the sooner it is reduced the better it will be for the electrical industry, and particularly for the contractors and dealers that are now suffering from irresponsible competition and having difficulty in making a fair net profit.

The campaign to promote more universal use of the Standard Accounting System must not be interpreted to mean that profiteering is to be encouraged. The system is primarily designed to show exactly the cost of doing business so that losses may be absolutely avoided and a fair profit earned.

Proper Methods of Doing Business Will Eliminate Competition.

It is unnecessary to ask if the elimination of unfair competition is desired, but it is not good ethics to drive irresponsible competitors out of business. The most sensible plan is to teach such competitors proper methods of doing business. Once they see the light they will reform their methods without urging. The most difficult problem is to get the interest of the "slow pay" concern aroused. Credit is a very delicate subject for the individual credit man to discuss lone-handed with such concerns, and it is only by concerted action that the desired result can be obtained without detriment to any particular creditor or credit manager.

Contractor-dealers have no doubt read the article which appeared recently in several of the electrical trade papers suggesting the use of stickers on statements of past-due accounts and on collection letters. The use of these stickers so far has resulted in more requests for information and literature about the Standard Accounting System in the last few months than were received in the few years since the system was placed on sale by the National Association. The reason is, that these stickers are sent simultaneously to a certain concern by a majority of the creditors, driving home in an impersonal way the necessity for improvement in the method of making payments and encouraging an inquiry for information about the Standard Accounting System, the installation of which is indirectly suggested as the proper way out of the difficulty.

We are all in business primarily to render service to others and secondarily to obtain fair remuneration for that service if possible. The study of Emerson's essay on "Compensation" is suggested to any who may disagree.

Adoption of Accounting System by Dealers Should Be Urged.

There are a number of ways in which contractor-dealers can be of service to others in promoting more universal adoption of the Standard Accounting System. The principal way is to persuade non-members to join the association, and then give this subject a prominent place in discussions at regular or annual meetings, so that all of the advantages of the Standard Accounting System may be fully understood and appreciated. It is only by association of individuals and ideas that real progress is made.

Most of the electrical trade papers now have a financial department and members of associations should contribute articles to such trade papers, giving concrete examples of benefits derived by installation of the Standard Accounting System. Salesmen that call should be urged to avoid soliciting orders from "slow-pay" concerns that have not installed the system.

Suitable resolutions should be made and published in *The Viewpoint*, published by the National Electrical Credit Association, calling upon credit managers to assist in promoting more universal adoption of the Standard Accounting System by "slow-pay" concerns, thereby eliminating reckless and irresponsible competition. Similar resolutions should call upon credit managers to not extend credit to newly organized concerns that have not installed the Standard Accounting System, and that are not properly equipped with sufficient capital, capable management, experience and other necessary requirements for the foundation of a successful enterprise. Such concerns should be convinced at the start of the necessity of the Standard Accounting System before credit is extended.

The National Association should be urged to employ a field representative to look after the proper installation and maintenance of the system and to co-operate with the local or state associations in this work. Where justified by conditions, the various local associations should have their own field representative with duties similar to the national field representative. The cost will be a good investment.

Contractors and dealers who are prompt pay, and who are making a fair net profit, can also derive benefit from the Standard Accounting System. It is, therefore, suggested that a good example be set for "slow pay" competitors by installing the system in your own business. It has already been demonstrated to be of particular advantage to contractors and dealers who have their business divided into several departments. Installation of the system in such cases may show that the dealer is unknowingly losing money in one or more departments, which may be concealed by the profits of the other departments.

Banking Interests Demand Proper Accounting Systems of Creditors.

One of the best arguments for an efficient accounting system is the fact that one can at any time make a statement to his banker and secure a necessary loan, instead of holding up payment of bills and jeopardizing his credit standing. Creditors do not relish, as a rule, having the role of banker thrust upon them. It is the real function of the banker to supply additional capital where needed and justified. One of the most valuable assets is a close relation with the banker, based on confidence and mutual understanding, that enables a dealer to safely weather the business storms that frequently harrass the contractor. Not only is his credit standing thus maintained, but the cash discounts which he earns represents a considerable profit which more than offsets the interest charges on his bank loans. The practice of sending copies of a financial statement (unsolicited) to concerns from whom retailers make purchases is highly commendable and creates a feeling of confidence in them.

Attention is called to the work of the committee which formulated the Standard Accounting System, of which George J. Murphy, of Pettingell-Andrews Co., Boston, was chairman. The members of this committee gave a great deal of their valuable time and energy, and spent a large sum of money in order to make it possible for contractors and dealers to conduct business on a profitable and intelligent basis. The other members of this committee are: M. A. Curran, T. H. West, Ernest Freeman and J. Bray. Credit is also due J. E. Sweeney, Stanley A. Dennis, W. H. Morton, M. H. Thomas, C. E. Patterson, R. B. Woolley and O. H. Caldwell, who were pioneers in the movement for more efficient accounting. Every branch of the electrical industry owes these men a debt of gratitude.

The Standard Contractors' Accounting System has been approved and indorsed by the National Electrical Credit Association, the Electrical Supply Jobbers Association, the Association of Manufacturers of Electrical Supplies and the Society for Electrical Development; and it has been adopted and copyrighted by the National Association of Electrical Contractors and Dealers. With such approval, is there any electrical contractor or dealer who should hesitate to install the system, or who can afford to be without it?

CENTRAL STATION VS. ELECTRICAL CONTRACTOR-DEALER.

Present Contentions and Future Co-operation as Outlined at Indiana Annual State Contractor-Dealer Meeting in Indianapolis.

By C. C. Baines,
Baines Electric Service Co., Terre Haute, Ind.

That a closer relationship should exist between the central station and electrical contractors and dealers is a fact which will today be granted without discussion. The central station needs the co-operation of the electragist as much as the electragist the co-operation of the central station. Both have their place in the world today; both must function with each other to work out problems which present themselves daily.

There has been in the past, in a great many localities, anything but a spirit of unity between the central station and the electragist. The electragist has been prone to "knock" the central station rather than boost it. If we will investigate carefully we will find that there is an underlying reason for this condition of affairs.

Back in the early '90s, shortly after electricity came into use for light and power purposes, we find there existed no electragist. What, at that time, took the place of the central station did not only the work of electrical construction, but also managed the sales of what few electrical appliances that then existed. There was no electrical contractor. As time went on, and the central station came into its own, there arose the demand for the electrical contractor and, naturally, the central station, which had controlled the electrical field, prior to the advent of the electrical contractor, felt somewhat as though the latter was an intruder in its field. As time went on and the electrical industry was developed, the contractor added to his line the sale of electrical appliances; and more and more the central station looked on with anything but a co-operative feeling.

Certain Central-Station Practices Resented by Contractor-Dealers.

One of the first breaches that existed between the contractor and the central station was the practice of the central station in replacing carbon lamps without cost to its customers. With the advent of the Mazda lamp the practice of replacing lamps free of charge was susperseded in a great many localities throughout the United States by the practice of selling lamps at less than list price. This practice, no doubt, was made in order to control the sale of Mazda lamps. Perhaps the central station will say that the public demands this practice. Now, if the public demands this practice it seems rather strange that the public would purchase millions of lamps every year from the electrical stores and pay the standard list price established by the manufacturer, even though they know they can purchase lamps at a discount from the central station.

Is it logical to think that the practice of replac-

ing blown fuses is another demand of the public, when we find on investigation that thousands of dollars' worth of fuses are sold annually from places other than the central station.

The practice of repairing without cost appliances sold by the central station even though the guarantee has expired, is another practice which it seems is to be condemned. Likewise, the practice of the central station of selling large motors and installing them at cost is most unfair to the electragist. There are also cases where appliances have been sold on terms which have extended over a period of 2 yrs. or more. Is this fair?

This selling of lamps at less than list; this replacing of blown fuses without cost, and numerous other conditions just mentioned, certainly do not add to the income of the central station nor at the same time could it offer a co-operative spirit between the central station and the electragist. In this day when central stations are asking for and, no doubt, need increased rates to cover the enormous advance in overhead expenses, it seems a rather ludicrous condition to allow this source of income to escape.

It is folly to believe that the public demands practices of this kind for no sensible person would expect a central station or contractor to replace blown fuses or sell lamps at less than list price. It is true the public will accept these privileges if they are offered. But the public is not, as a whole, unreasonable in its demands.

The fact that lamps and appliances are often sold at less than list, brings from the public the statement that the electragist who does not cut the price is holding the prices unfairly. I have heard of appliances being guaranteed by central stations for an indefinite period of time. But I also think that no sane person today expects any kind of appliance to last forever. Of course, as long as the public is furnished with service of this kind it would be fool-hardy indeed for them to reject it, but I again ask does the public demand it?

Subcollection Stations in Neighborhood Electrical Stores.

Several months ago a trade journal printed an article in which it advocated the establishment of subcollection departments in stores of the electragist. This seems an excellent means of getting closer co-operation between the central station and the electragist. This would also afford a much better means of collection as far as the public is concerned, and would tend to establish the fact that the central station was endeavoring to render better service at all times. The housewife could pay her bills more promptly without a trip to the company's office; then some month, when she did not understand why her electric bill was so high, she could feel that by asking her electrical dealer she would get an answer which would be given in her best interest rather than a stock reply from one of the clerks in the company's office.

We know how ready the general public is at all times to criticize a public utility, and particularly a central station. It, therefore, seems only logical that the central station would do all in its power to avoid criticism. There is no question that the local electrical trade can always exert a very powerful influence on public opinion. Electrical contractors, dealers, and their employes are in constant contact with the lighting company's customers. Their opinions are, therefore, consulted quite frequently regarding service trouble, high bills, etc. The kind of an answer will, therefore, depend largely upon the attitude of the electragist, based upon the treatment which he feels he has had at the hands of the central station. And so, to quote the trade journal, "Public opinion, most highly prized of central station possessions, is daily being given direction (for or against) by trade opinion."

The electrical trade is growing in importance in every community. Thousands of new electrical retail stores are being opened throughout the country. The trade opinion is growing to be a real factor. The half-million people employed by the electrical manufacturers, jobbers and contractor-dealers can help form sound public opinion toward any constructive program of central station development. If the lighting company has a message to be spread before the court of public opinion, rightly guided trade opinion can be relied upon to put it over.

To show the attitude of some central stations toward the electragist, permit me to quote the words of C. C. Lovejoy, commercial manager of the Ft. Smith Light & Traction Co.: "Have you realized that every contractor-dealer in your city is a personal salesman (without pay) for your central station; preaching the gospel of your business, working for your profit; that every electrician he employs can be made a good salesman for you; that their wives and their children, relatives and friends can all be made boosters that will build up your load, stop unfair criticism of the electric lighting company and put electricity over?"

Central stations will find the electragist ready to meet them more than half way in working out a policy of better co-operation. The electragist does not expect the unreasonable, as has been demonstrated in numerous cases in the immediate past, where central station and electragist have come together and worked out their individual problems as one. Ever ready to boost one another, with increasing confidence in each other, ready to co-operate to the limit, and always willing to serve each other; that is the spirit which should exist between the central station and the electragist.

STORE CONVERTED INTO BIG NIGHT WINDOW DISPLAY.

Electrical Dealer in Allentown, Pa., Departs From Usual Custom to Attract Theater Patrons to His Elaborate Stock of Appliances.

The S. & W. Electric Shop, Allentown, Pa., owned by W. M. Solliday and E. W. Weaver, instead of having window displays, has turned the whole store into a window, and this novel method of attracting the attention of the public has proven a big factor in bringing in sales.

Located right in the heart of the theatrical district, the crowds late at night are interested in the showings arranged in the brilliantly lighted establishment, and interest is won in appliances in these night glimpses of stock that result in many

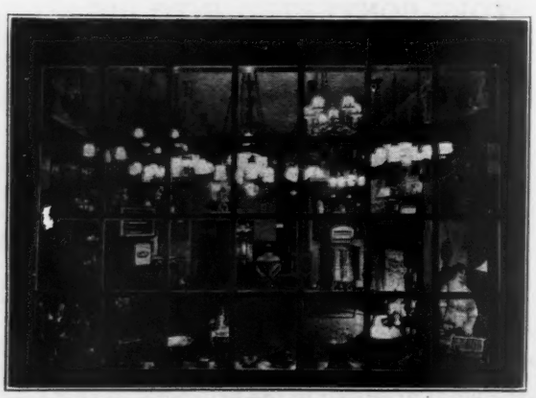
"prospects" calling the next day to ask about the articles that they had seen the previous evening.

Instead of having a show window with a solid background extending up to the level of the eye, in order to shut off the view of the store and focus inspection on the goods displayed, Solliday & Weaver did away with the window entirely. In fact, they made their whole store a window by cutting the big plate glass into many small window panes, 28 in all. The firm found it could get 16 of the 28 out of the plate glass and the other 12 were secured from scrap glass, so the slogan, "The Shop With the Little Windows," that has made the S. & W. store one of the show places of Allentown, was attained with comparatively little expense.

As an outcome of this innovation the store is now the whole window, or the whole window is the store, whichever you please. The elimination of all the background in the window has made the entire store visible, and the lighting is controlled by an automatic regulator which switches off the current an hour or so after the theatres close. Favorable comments heard by the members of the firm from time to time show that the attention won by the arrangement brings business far in excess of the expense involved.

An X-ray color lighting reflector is used to vary the tones of color in the store, and this is changed twice a week. Hence, the passerby will find the tint one night entirely different from that which prevailed the last time he took a peep into the shop. This variation of color is one of the magnets that maintains interest in the store's interior, and the stock is shifted around from time to time so that the articles featured one night will be eliminated and some new offering played up for the next evening.

Allentown is the terminus of the famous route that the old Liberty Bell followed over a century ago when it was taken from Philadelphia and rushed up State in an oxcart to keep it out of the hands of the British when they took the Quaker City in the days of George Washington. The tone of the architecture in many parts of the city is Colonial in type, and the small windows into which the big plate glass was cut just match nicely the general trend of the older structures in the community. So the S. & W. Electric Shop wins approval and has the indorsement of the architects in following its ideas in windows, and the ensemble gives the establishment a distinctive note which contributes much to its success.

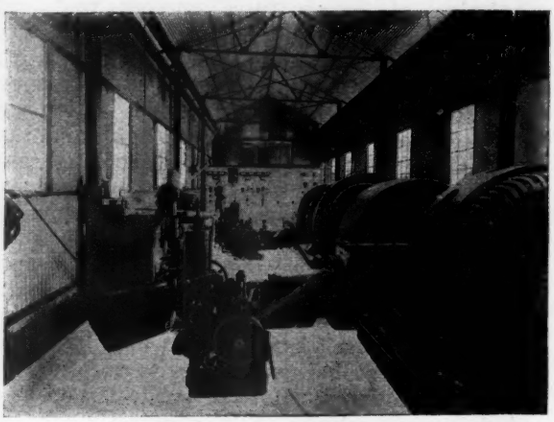


Colonial Window Effect Discloses Interior of S. & W. Electric Shop to Theater Goers in Allentown, Pa.

Who can pass a window where the blinds are not drawn and where the lights burn brightly without giving it more than a casual glance? That's where the pull of the "Shop With the Little Windows" comes in, for it attracts the eye immediately, while the warm glow of light also commands instant attention.

GUANTANAMO ELECTRIC COMPANY OF NORTHERN CUBA.

The Guantanamo Electric Company of Cuba, which supplies power for the cities of Guantanamo, Jamaica and surrounding sugar plantations, and whose hydroelectric station on the Guaso river is shown here, was organized with a capitalization of $800,000 in 1916. Eduardo J. Chibas, formerly a railroad official of Cuba, is president of the company.



Interior View of Hydroelectric Station Near Guantanamo, Cuba.

At the present time, power at the station is developed by two Allis-Chalmers 560-hp. impulse wheels, making a total of 1120 hp. direct-connected to 470-kw., 2300-volt, 3-phase, 60-cycle Westinghouse alternators. There are also two exciters, one propelled by a 60-hp. impulse wheel and the other by an electric motor. Each has sufficient capacity for the two generators. Two 500-kw. transformers of the oil insulated self-cooling type, raise the voltage from 2300 to 23,000 volts for transmission. The hydro plant is located about 12 mi. from the city of Guantanamo.

JAPAN PURCHASES WESTINGHOUSE EQUIPMENT.

An indication of the improvement in business conditions in Japan since the 1920 critical financial stress of that country is received from the recent placing of an order with the Westinghouse Electric & Manufacturing Co. for substation material amounting to $76,000. This order covers the complete equipment for two substations and includes eight rotary converters, 12 transformers, two complete switch gear equipment, and station lighting transformers.

Other large orders for railway material recently have been placed in this country by the Seto Electric Railway Co., the Bisai Electric Railway Co., the Nagasaki Electric Railway Co., the Tokio Municipality and by other large Japanese railway operating companies and municipalities.

EDITORIAL COMMENT

Reading the Signs

A famous physician is credited with the statement that if everyone got enough exercise, fresh air and plain food, there would be no need for doctors. For these things are the fundamentals of health—and they cost little. Just so in the business world, says Dec. 5 *Lighting Rays*. Every business demands certain fundamentals. We can tinker around with details if we will. We can pretend we don't believe in fundamentals, or that we haven't time to study them. But ignoring a fact doesn't kill it, and one day it is apt to come to our business, break down the front door and intrude itself upon our private office with a nasty sneer. And we cannot ignore it then. We have heard much talk during the recent depression about "business cycles," "merchandising problems," "cost accounting," "cost-finding systems" and many other phrases. How often have we ignored them, and decided that our business was in some mysterious way above the necessity of studying these matters?

Two years ago we were flooded with orders—and a lot of us thought that we could go on overproducing indefinitely. Today many of us are depressed and convinced that things will be just as bad next year as they were in 1921, forgetting that the general public must have our goods sooner or later, and that the less buying that has been done during the past year, the more certain it is there will be more buying next year.

Some of us "don't believe in advertising" but advertising is, after all, only telling our customers the good points and advantages of the goods we make and, unless we do tell them, how in the world can we hope to sell? Some of us do not even believe in cost accounting and cost finding. Yet there is no error more fatal than that of neglecting to find what our products cost us, because the costs will inevitably find themselves, and do it in an unpleasantly forcible manner. Nor are we alone in this. In every industry we find thousands of business men who are still ignoring these fundamental facts of business—who are still wailing about the "black future"—and who are not well enough versed in fundamental business principles to realize that the future is bright because things have been bad for nearly 20 yrs.

Perhaps some of the blame is to be laid upon the financial experts themselves. Perhaps they have wrapped up their ideas in too many words and thus complicated what should be simple. It sounds much more impressive to say that "a proper system of cost-accounting enables the merchant to determine the essential facts relating to the ratio between the production and the merchandising expense," than it does to say "If you don't know how much your goods cost, you'll go broke," but they mean about the same thing to the merchant or manufacturer.

Let us study fundamentals first. Then, when we install a cost-finding system we shall do so because it is necessary adjunct to the fundamental necessity of knowing our costs—not because we regard it as a cure-all. It is a tool, not a principle.

Tremendous changes are taking place in the business world. Never before has it been so essential to study production costs and similar subjects; never has it been so essential to get at the bedrock facts of business than it is now. And many of us are getting down to bedrock facts and are cashing in on them. A few years hence their competitors will wonder how they did it—and will talk vaguely about "luck?"

Let's get down to bedrock—and good business. Don't forget, too, that the Milwaukee Fixture Market is the most effective means of getting quick results for your order department, and thus starting out the New Year right. Have you reserved your space yet?

Progress in Communication

Communication has been one of the strongest links in building civilization, and at the present time is the key to the success of negotiations looking toward the uniting of the great powers of the world in a harmonious union. If the peoples of the various nations are successful in communicating their ideas and thoughts one to the other a common basis for mutual co-operation for the good of all will be found. If language, time or other defects of communication build up too great a barrier, then an understanding may not be reached until further progress shall have broken down those barriers.

In a recent lecture before the American Institute of Electrical Engineers, A. N. Goldsmith, director, research department of the Radio Corporation of America, presented a brief review of the present status of "World Communication." The following quotations are taken from the lecture:

"World communication in its broad realization will have many important effects; among them, commercial, political, scientific and personal. The

effective conduct of international commerce is slavishly dependent on speedy and reliable communication. Unless information and decisions can be rapidly transmitted from one business house to another, or from the headquarters of a business to its subsidiaries and representatives, the pace of business lags greatly and world commerce is discouraged. This fact has been clearly recognized by the greater commercial nations and is borne out by the vigorous development of the cables by England and of radio communication by the United States.

"There are many ways in which world communication will have political results. In the white light of unrestricted publicity through the press it might be anticipated that the policies of the nations must be chosen with greater consideration for the views of their neighbors, with a resulting decrease in friction and irritation between nations. Furthermore, governments provided with effective international communication are able to deal with each other more directly. The public tendencies and views of each nation, its aspirations and its methods will all become more clearly known to the remainder of the world, with the result that sources of disagreement can be recognized at an early stage, and the resulting misunderstandings avoided before it is too late.

"The effectiveness of the life of the individual is greatly dependent on communication. The swift transmission of intelligence in effect extends his personality to any desired point and enables him to accomplish in a lifetime, without undue effort, what could never have been hoped for in the past. Coincident with the possibility of keeping in touch with friends, family and business associates at any distance, we find an increased self-confidence and sense of power in the individual and a broader attitude toward the world and its problems. Nor should we fail to appreciate justly the importance of communication within smaller zones. Presumably, men will always find their most vital interests within a region of moderate dimensions and, therefore, communication within such regions will be of paramount importance. Having satisfied the primary and most important communication needs of each man's city and its suburbs, world communication will extend his reach, when desired, over nation-wide and world-wide zones.

"Scientific co-operation, both in research and in practice of engineering, has always been slowed up by the lack of communication between the scientists of the various nations. It is curious to note how frequently the same physical law will have the name of a different discoverer attached to it in each country. And since, in general, the discoveries were made not long after each other, they were obviously the result of parallel and needless duplication. The establishment of real clearing houses for scientific information and of vigorous co-operation between the widely scattered scientists of the world waits on world communication for its full attainment.

"We have reached the day when the cable carries a message from London to New York and gives the answer in 3 min., when a man speaking in Virginia may be heard in Hawaii or Paris, when practically universal telephone service is available throughout the United States, and when the radio messages from Berlin or Honolulu can be written at high speed in ink in New York. If the governments of the world adopt a highly sympathetic and thoroughly warranted attitude toward world communication, if they foster it by all means in their power and vigorously restrain those who would hamper the growing arts which alone can supply such communication, we may confidently expect that the admirable promise of past achievements will be adequately fulfilled in the universal world communication of the future."

Wrought Brass and Bronze

Wrought brasses are alloys of copper and zinc, in which the copper content varies from 60 to 95%. A small percentage of lead is added in cases where good machinability is desired.

The wrought bronzes are alloys of copper and tin with lead and zinc sometimes added, where the copper ranges upwards to 95% in a true bronze, or may run as low as 80% when it carries a high percentage of zinc.

The raw materials, consisting of copper, zinc and scrap, weighed in the proper proportions to give the required alloy, are melted together as rapidly as possible in a reducing atmosphere in order to prevent the oxidation of these highly oxidizable metals, and to prevent an undue absorption of gases. Either coal, oil or electricity may be used for melting, depending upon the economic conditions involved.

In the manufacture of sheet metal, the molten alloy is poured into castiron molds and made into bars which are processed in the following manner: The gate end which contains casting defects, such as shrinkage, holes and dross, is cut off by powerful shears until sound, clean metal is encountered. The bars are then rolled between large, chilled, castiron rolls in order to reduce their thickness and to level off any roughness such as is characteristic of cast bars. Both surfaces are then removed in an overhauling machine, which is equivalent to a milling operation, so that the top and the bottom of the bars may be clean and free from casting defects. The bars are then rolled to the required thickness.

THE WEEK'S NEWS

Reports of Important Meetings, Developments and Other Happenings of the Electrical Industry and Its Allied Interests

LOCAL MERCHANTS SHOW INTEREST IN FIXTURE MARKET.

Electrical Development Association Opens Bureau of Information in Milwaukee to Acquaint Public With Need for Better Lighting.

The Milwaukee Better Lighting Campaign was definitely launched at a recent meeting, when 125 representatives of the electrical interests of the city met in the lecture hall of the Public Service building to listen to talks by P. B. Zimmerman, advertising manager of the National Lamp Works of General Electric Co., Nela Park, Cleveland; Fred R. Farmer, president of the National Council Lighting Fixture Manufacturers; F. A. Coffin, secretary of the Electrical Development Association of Wisconsin; F. A. Vaughn, chairman of the Illuminating Committee of the same Association, and Charles L. Benjamin of Chicago and Milwaukee, who has been appointed director of publicity for the Better Lighting Campaign.

In an interesting talk, Mr. Zimmerman told of the campaign conducted by the Electrical League of Cleveland, and predicted that the Milwaukee campaign would set a new record in electrical co-operative advertising. President Farmer, of the National Council, stated that the Fixture Market to be held in the Milwaukee Auditorium during the week of Jan. 30, will be the greatest exhibition of lighting fixtures ever brought together under one roof. Nearly all of the 160 booths available have already been contracted for and the Market will be opened to the general public each evening, the afternoons being reserved for members of the Lighting Fixture Dealers' Society of America, the National Council Lighting Fixture Manufacturers and the Illuminating Glassware Guild, whose joint conventions will be held in the Auditorium at the same time as the Fixture Market.

Messrs. Coffin, Vaughn and Benjamin told of the work that has already been done towards making the Milwaukee public more familiar with the need for better lighting in the home, the office, store and factory, and outlined the future activities of the Electrical Development Association of Wisconsin. The Association, which has been incorporated under the laws of Wisconsin, has already opened a bureau of information in the First Wisconsin National Bank building, where architects, building contractors and home owners, proprietors of retail stores and manufacturers can obtain without cost expert advice on wiring and illumination.

F. A. Vaughn, illuminating engineer and chairman of the Illuminating Committee, is having a number of plans drawn indicating the electrical outlets which should be provided in various types of residences, and applications have already been received from architects and building contractors for copies of these plans when completed. The Chandelier Club of Milwaukee, of which Arthur Polacheck is president, is installing lighting fixtures in the bureau of information of the Association with the idea of making these offices a practical demonstration of what better lighting means.

An interesting phase of the Milwaukee campaign is the interest manifested in it by industries other than the electrical industry. Already practically all of the retail merchants of Milwaukee know that for the next few months at least the one thing that Milwaukee people will be thinking and talking about is better lighting and greater use of electrical appliances in the home, and in order to cash in on this interest a number of retail stores are planning demonstrations of improved methods of show-window lighting during Better Lighting Week, while furniture dealers are preparing for show-window displays of wired furniture.

The officers of the Electrical Development Association of Wisconsin are: President, R. M. Van Vleet; vice-president, Phil Polacheck; secretary, F. A. Coffin, and treasurer, P. C. Burrill. The directors include the officers above named with the addition of H. P. Andrae, F. M. McInery, and F. A. Vaughn. The men who are formulating and executing the advertising plans are F. A. Coffin, J. C. Schmidtbauer, Arthur Polacheck and Charles L. Benjamin, and the headquarters of the Association are at 1324 First Wisconsin National Bank building.

EDISON MEDAL FOR 1921 AWARDED TO C. C. CHESNEY.

The Edison Medal, "for meritorious service in electrical science or electrical engineering or electrical art," has been awarded, for the year 1921, to Cummings C. Chesney, chief engineer and general manager of the Pittsfield Works of the General Electric Co. This award, which is made by a committee of 24 members of the American Institute of Electrical Engineers, and which is among the highest honors of the kind in the field of electrical engineering, was made to Mr. Chesney for his work in the development of transmission apparatus, generators, condensers, transformers and converters during his association with the late William Stanley, of the Stanley Electric Manufacturing Co., of Pittsfield, Mass., which concern was amalgamated some years ago with the General Electric Co.

Mr. Chesney is one of the pioneers in electrical

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discovery. He made plans for the first successfully designed, advanced types of a-c. generators for high voltages. He was, as stated, associated with the late Mr. Stanley, of Great Barrington, Mass., famed as the inventor of the a-c. system of long-distance transmission. Mr. Chesney was born at Selingsgrove, Pa., Oct. 28, 1863, and received his bachelor of science degree from Penn State College. After teaching mathematics and chemistry for a time, he became in 1888, associated with Mr. Stanley. In 1889 and 1890 he was with the U. S. Electric Lighting Co., Newark, N. J., and then became one of the incorporators of the Stanley Electric Manufacturing Co. He was vice-president and chief engineer of that company from 1904 to 1906, becoming chief engineer and manager of the Pittsfield plant of the General Electric Co., with which the Stanley company was amalgamated, in 1906. This position he holds at the present time. He is a fellow of the American Institute of Electrical Engineers and a member of the Society of Arts, London, England.

The Edison Medal has been awarded to the following, beginning with the first to whom it was given: 1909, Elihu Thomson; 1910, Frank J. Sprague; 1911, George Westinghouse; 1912, William Stanley; 1913, Charles F. Brush; 1914, Alexander G. Bell; 1915, no award; 1916, Nikola Tesla; 1917, John J. Carty; 1918, Benjamin G. Lamme; 1919, W. L. R. Emmet; 1920, Michael I. Pupin; 1921, C. C. Chesney.

DENVER ELECTRICAL CO-OPERATIVE LEAGUE ACTIVITIES.

Electrical Contractor-Dealers of Denver Make Special Window and Floor Displays in Their Stores During Electrical Week.

Electrical Week in Denver was launched with a bang. The period Dec. 5-10 was so designated by the Electrical Co-operative League of that city, under whose auspices the activities and advertising were conducted. According to reports, nearly every retail electrical dealer in the city arranged special window and floor displays in their stores. Novel effects were obtained through seasonable color schemes, and special "stunts" accompanying the demonstration of various appliances attracted unusual attention.

Newspaper advertising in the co-operative campaign now being carried on started the "Electrical Christmas" story about Dec. 1 and during Electrical Week the League's Christmas poster was reproduced in every paper every day. A number of the jobbers and dealers used "tie-in" copy to advantage, it is reported. The gift certificate idea was loudly acclaimed by the entire industry and although only the retail dealers are issuing them, the other members are backing the proposition to the limit. The League, through its advertising agency, prepared an attractive certificate in two colors, with window streamers accompanying it, the use of which thus far is believed by the League officers to indicate unusual effectiveness as a sales aid.

Other cities roused by the success of the movement have made hurried calls for advice and information so that an electrical gift certificate plan can be worked out in their communities. It is understood that C. H. Talmage, executive secretary of the Rocky Mountian Electrical Co-operative League in Salt Lake City, is using the information given him by the Denver organization to good advantage. In both cities it is felt that the certificate will come into its own immediately before Christmas through purchase by the eleventh hour shopper.

One of the features of Electrical Week was the invitation of all the dealers to make it a "look-around" week in which prospective customers could get a better idea of the appliances and other electrical devices which are being featured this Christmas. A. C. Cornell, of the Western Electric Co., who is primarily responsible for the success of the movement through his activity as chairman of the League's publicity committee, has stated himself as much gratified with the results obtained.

On the second night of Electrical Week, Dec. 6, to keep the interest properly concentrated, the League held one of its open meeting dinners at the Metropole hotel, with 135 in attendance. Although it was one of the general monthly meetings, the interest displayed was unusual, according to S. W. Bishop, the League manager, because of the interest aroused through the drawings for appliances to be displayed in the electrical home, which will be opened to the public some time during January.

John J. Cooper, Alex Hibbard, R. W. Elliott and N. R. Crooks were the committee in charge of the selections by lots. Prior to the meeting, a list of all appliances to be displayed was sent to every member with the request that the list be checked of the appliances desired for entry in the exhibition of the home. It was previously decided that only distributors would be allowed the privilege of drawing for the display. A brief let-down in the advertising will follow Electrical Week and a few days later additional emphasis will be injected into the story of telling people how to make an "Electrical Christmas."

MODEL ELECTRICAL HOME ERECTED AT SALT LAKE CITY.

The Rocky Mountain Electrical Co-operative League, 812 Kearns building, Salt Lake City, Utah, which is composed of accredited represenatives from all branches of the local industry —manufacturers, distributors, contractor-dealers and power companies—and which is organized and conducted for the purpose of giving better electrical service to the public, recently built a model electrical home to demonstrate to the public the needs and uses of more convenience outlets and electrical appliances. In a 4-page folder recently issued by the League appeared the following data regarding "Salt Lake's Model Electrical Home":

That electricity will forever solve the servant problem for the progressive housewife is at least a demonstrated

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fact. Salt Lake's first model electrical home constructed in "Booneville-on-the-Hill" at Third avenue and Alta street, was opened for free public inspection recently. The home electrical contains everything that is practical in the way of modern labor-saving appliances and illumination.

The wiring of the building is from plans and specifications prepared by a committee of the Rocky Mountain Electrical Co-operative League in connection with the builder. While these plans provide for 40 switches and 140 electrical outlets—built-in receptacles for connecting up cooking, heating, cooling, lighting, refrigeration and power electrical appliances—the equipment installed was neither superfluous, impractical, nor extravagant.

It is a well-known fact that the average electrically-equipped home of today is inadequately or improperly wired. Due to this fact, it is conservatively estimated that fully 90% of all the appliances owned in such homes are giving either only partial service or no service at all. The model electrical home will bring all appliances into convenient use without the trouble of standing on chairs, removing lamps, inserting plugs, or in any way interfering with the lighting arrangement.

You will see in the home electrical, dining and living room outlets for electrical table utensils; bedroom and bathroom receptacles for electrical toilet articles; outlets for clothes washer and electrical flatirons in the laundry; electric range and dishwasher outlets for the kitchen and pantry, and scores of other outlets too numerous to mention.

DISCUSS IRON AND STEEL PLANT ELECTRIFICATION.

Electrification of the iron and steel industry was the chief topic of a joint meeting of the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, the Association of Iron and Steel Electrical Engineers and the Western Society of Engineers at the offices of the latter organization in the Monadnock building, Chicago, on Friday evening, Dec. 16. W. S. Hall, electrical engineer of the Illinois Steel Co. presented a number of slides showing how the use of electricity in the mills has eliminated hazards and reduced the arduous manual labor formerly necessary.

FUTURE PLANS OF PHILADELPHIA SECTION, A. I. S. E. E.

Automatic and Remote Controller Substations Among Important Subjects to Be Discussed at Meetings Arranged for Next Year.

The following schedule of meetings and papers has been issued by the Philadelphia section, Association of Iron and Steel Electrical Engineers, of which Linn O. Morrow, Franklin Trust building, Philadelphia, is secretary:

Jan. 7—"Relation of the Engineer to Present Industrial Activities," by a speaker to be announced later.

Feb. 4—"Efficient Burning of Fuel and Use of Waste Gases in the Industrial Plant," by W. W Pettibone, assistant chief engineer, Bethlehem Steel Co., Lebanon (Pa.) plant.

March 4—"Automatic and Remote Controller Substations," by R. Tencher, district manager, Dwight P. Robinson & Co., Chicago.

April 18—"Wireless Telegraphy, Telephony and Radio Control," by L. R. Krumm, radio engineer, Westinghouse Electric & Manufacturing Co., New York City. This will be a joint meeting with the Engineers' Club and affiliated societies.

May 6—"General Ideas and Discussion." Every active member is invited to prepare a paper on a subject pertaining to the application of electricity to the iron and steel industry. Announcement will be made of the results of the election of officers for the coming season.

June 3—Annual outing. Details will be announced at the May meeting.

All meetings will be held in the Engineers' Club, 1317 Spruce street, Philadelphia, and will start promptly at 8 p. m. They will be preceded by an informal dinner at 6 p. m.

ELECTRICAL HOME TO BE OPENED BY DENVER ORGANIZATION.

Electrical Co-operative League Conducts Drawings for Appliances to Be Displayed in Denver's First Electrical Home Next Month.

Drawings for the appliances to be displayed in Denver's first electrical home, which will be opened within the next 30 days, was the feature of the December general meeting of the Electrical Co-operative League in Denver. Over 100 were present and the competition in the drawings, together with enthusiasm over the co-operative advertising campaign, made the meeting even more successful than those held in previous months, according to reports.

The League sent out questionnaires before the meeting to all its members asking what each one thought as to the appliances going into the home. The replies received enabled the committee, consisting of John J. Cooper, Alex Hibbard, N. R. Crooks and R. W. Elliott, to tabulate the equipment for the home. For those items in which only one firm was interested no drawings were held. Likewise when one firm drew one of the major appliances, such as the range or washing machine, it was precluded from further drawing on that class of equipment.

The drawings were conducted along the lines recommended by a previous committee. Its report provided for the drawings to be made between the distributors, which included all the jobbers, several retail dealers who are distributors, and those manufacturers who held League membership but who did not have an outlet for their goods through a member.

The committee now has a list of 50 different appliances which will be placed in the home ranging from the heavy laundry equipment to a boudoir incense burner. It was announced that these appliances would not be installed until all the furnishings had been placed in the house by the Daniels & Fisher Co., one of Denver's leading department stores, which believes so thoroughly in the electrical home idea that the merchandising manager, A. B. Trott, has laid out on the furniture floor a complete 5-room house with walls and all the features of a home, excepting that one side of the room is left open. Proper lighting and plenty of convenience outlets are provided for this novel store demonstration.

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The same committee which handled the appliance drawings also made arrangements for the supply of the fixtures. Their design is being developed in accordance with the scheme of interior decoration which is under the direction of Miss Marjorie McBride, it was announced at the meeting.

According to T. O. Kennedy, the League chairman, interest in the co-operative movement is rapidly increasing, as was demonstrated at the League's December meeting. He feels that with the opening and display of the first home the way will be paved in Denver for numerous other electrical developments.

CENTRAL STATION INSTITUTE TO TRAIN OFFICE BOYS.

A business course for office boys, junior clerks, and new employes was opened by the Central Station Institute last month in 943 Edison building, Chicago. Classes will be held weekly on Wednesdays for one hour. In this course it is the intention to teach the class in a more or less elementary manner the business of the company. This is to include the functions of the various departments, their location, personnel and their relations to each other. It is to cover an elementary discussion of electrical energy, including light and power, and industrial and domestic appliances, with a study of the rates of the company.

Prominence will be given to the desirable characteristics of successful employes, relations to the public, use of the telephone, letter writing, personal appearance, and study of the handbook, bringing prominently before the class what is expected by the public of employes of a public utility as well as the character of service expected by the company from its employes. After taking this course office boys should be sufficiently familiar with the operation of the various departments to answer intelligently all ordinary questions asked by the public, and should have a good working knowledge of the business of the company.

DISCUSS RAILWAY ELECTRIFICATION PROBLEMS.

The Philadelphia section of the Association of Iron and Steel Electrical Engineers held a joint meeting Dec. 20 with the American Society of Mechanical Engineers and the Engineers' Club. The feature of the meeting was a paper on "Yard Electrification of Industrial Plant Railways," by D. M. Petty, electrical superintendent, Bethlehem Steel Co., Lehigh plant, Bethlehem, Pa.

SEEKING A REDUCTION IN ELECTRIC LIGHT RATES.

The Montezuma Municipal Electric Light Co., Montezuma, Ind., operating throughout the city and at Hillsdale and neighboring districts, has filed a petition with the Public Service Commission to reduce its lighting rates from a primary schedule now ranging from $0.09 to $0.055 per kw-hr. to a new schedule varying from $0.08 to $0.05 per kw-hr., with a $0.50 minimum monthly charge, such reduction to become effective Jan. 1, 1922. The company set forth that it "has paid off all bonded and other indebtedness; its distribution system is in good condition; its depreciation and maintenance is fully cared for and that an average profit in excess of $200 a month is being shown."

HEARINGS ON EDISON LIGHT RATE CASE RESUMED.

The Department of Public Utilities, Boston, has announced the resumption of hearings in the case brought against the Edison Electric Illuminating Co. of Boston by the city of Boston and other consumers, for a reduction in rates. A motion has been filed by the counsel for the utility company asking the department to "fix and determine the price to be charged" for light and power service. This action has been protested by a number of individual consumers, holding that such procedure if carried out by the department will abrogate contracts between the company and at least 28 of its power consumers. The department has taken the question under advisement.

O. E. L. A. COMMITTEE MEETS.

The Transmission and Distribution Committee of the Ohio Electric Light Association, at its meeting Dec. 15 in Dayton, O., listened to an interesting talk on "Poles and Their Preservation," by J. E. Zeluff. Walter C. Wagner also addressed the members of the committee and the Western Electric Co. exhibited moving pictures of an educational nature.

COMING CONVENTIONS.

American Building Exposition, new Cleveland Auditorium, Cleveland, Jan. 4-14. Assistant manager, R. G. Collier, 1305 Schofield building, Cleveland.

Massachusetts State Association of Electrical Contractors and Dealers. Annual meeting, Springfield, Mass., Jan. 5. Headquarters, Hotel Kimball. Secretary, J. E. Wilson, 263 Summer street, Boston.

Western Association of Electrical Inspectors. Annual convention, Chicago, Jan. 17-19. Headquarters, Hotel Sherman. Secretary, William S. Boyd, 175 West Jackson boulevard, Chicago.

Association of Municipal Electrical Utilities of Ontario. Annual convention, Toronto, Canada, Jan. 26-27. Secretary, S. R. A. Clement, 190 University avenue, Toronto, Ont.

Lighting Fixture Dealers' Society of America. Annual convention, Milwaukee, Jan. 30-Feb. 2. Secretary, J. L. Wolf, Builders' Exchange, Cleveland.

National Council of Lighting Fixture Manufacturers. Annual convention and Lighting Fixture Market, Auditorium, Milwaukee, Jan. 30-Feb. 4. Secretary, Charles H. Hofrichter, 231 Gordon Square building, Cleveland.

American Institute of Electrical Engineers. Midwinter convention, Engineering Societies building, New York City, Feb. 15-17. Secretary, F. L. Hutchinson, 33 West 39th street, New York City.

Home Beautiful Exposition, Mechanics building, Boston, April 15-29. Manager, Chester I. Campbell, 5 Park square, Boston.

National Fire Protection Association. Annual meeting, Atlantic City, N. J., May 9-11. Secretary, Franklin H. Wentworth, 87 Milk street, Boston.

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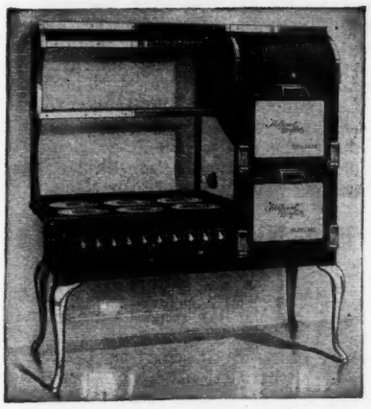
APPLIANCES and DEVELOPMENTS

New, Improved or Interesting Electrical and Mechanical Apparatus and Devices, and Applications of Equipment and Methods in Practice

New Line of "Hotpoint-Hughes" Electric Ranges.

Recently the Edison Electric Appliance Co., Inc., Chicago, manufacturer of the Hughes and Edison electric ranges, placed an entire new line of ranges on the market. These ranges—the "Hotpoint-Hughes"—are very attractive in design and embody many new and improved features. There are seven new models, varying in size from a 3-burner, low-oven type, to a large 6-unit, 2-oven and 2-broiler equipped



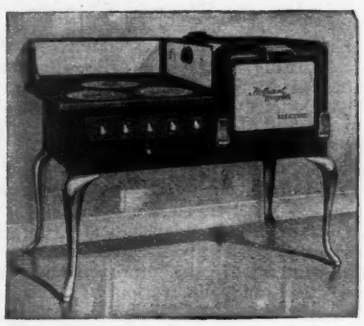
Large 6-Unit Type "Hotpoint-Hughes" Electric Range.

type. Two of the models have low ovens with two different sized cooking surfaces, 3- and 4-burner type. Another model, adaptable also to a still smaller space, has a high oven and four burners. Then there is a rather novel designed type that will fit under a window, its top rising but a few inches above the ordinary sill.

The other three models are larger in size and more suitable to the average family. The largest type is equipped with six units, two ovens and two broilers, making it suitable for the larger family, boarding-houses, clubs, domestic science schools and similar establishments.

Among the numerous exclusive features the new ranges are equipped with is a new type of oven thermometer. This thermometer, graduated to register accurately in degrees Fahrenheit, records instantly and accurately all temperature changes. Conveniently located on the side splasher where the indicating hand is always in plain view, the device is protected from injury. It is stated that this thermometer is the most accurate commercial temperature recording device available for domestic ranges, being considerably more responsive to temperature fluctuations than a mercury thermometer.

"Hotpoint-Hughes" Portable Oven.



Low-Oven, 3-Burner Type "Hotpoint-Hughes" Electric Range.

The new ranges are furnished, as specified, with either the sheath wire or the open-coil type surface heating units. One advantage of the units is that they are all interchangeable in the holes of the cooking top, so that a unit of the desired capacity and of either type can be placed where most convenient.

In using the open-coil surface heating unit the radiant glow makes it easy to tell at a glance when the heat is on, and this serves as an automatic reminder to turn off the heat after the cooking operation is complete. The coils are of the highest grade of nickel chromium wire, nonoxidizable and noncorrosive. They are securely fastened in the spiral grooves of a porcelain plate, which is of a composition specially designed to resist any breakage because of rapid heating or cooking. To prevent the loss of heat downward, an asbestos molded plate is placed under the heater brick, the two being assembled in a drawn steel pan to form the complete unit. An important feature of the open coil surface unit is the ease with which the resistance coil can be replaced. By removing two screws the coil, together with terminal leads, can be lifted from the brick. A new coil, with terminals already connected to it, can then be laid into the grooves of the heater brick and the terminal connections bent so that they pass through the slots in the lower insulating brick ready for connection to the plug.

The sheath wire surface unit is made by inserting a coil of nickel chromium wire into a thin, seamless steel tube, the coil being insulated from the tube by a special mineral powder and the tube then being compressed so as firmly to pack the insulation. This element is then placed in a mold and castiron poured around it. The result is a simple heating unit, the element having become an integral part of the casting. This casting, or "hotplate," with heat insulation beneath it to prevent loss of heat downward, is mounted in a pressed steel pan. This rugged construction results in a highly efficient, fast, easily cleaned surface unit particularly adapted for hard service. The sheath wire surface unit is the only type furnished for 220 and 240-volt service.

Another important development is the switch, combining a specially designed double-pole switch and cutout on a single base, which simplifies the wiring. One fuse is provided for each unit, the neutral wire being solidly connected, an arrangement approved by the Underwriters' Laboratories. The use of but one fuse greatly facilitates the replacement of fuses in case of wiring trouble,

Elevated-Oven, 4-Burner Type "Hotpoint-Hughes" Electric Range.

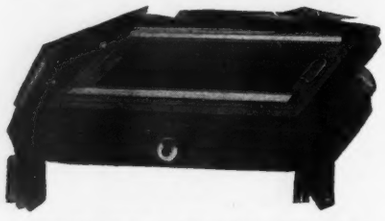
as there is no mistaking the fuse which is to be replaced. The fuse is easily accessible by simply withdrawing for a few inches the cleanout pan under the switches. There is no possibility of touching live parts when replacing a fuse, thus making it safe and easy for the housewife to renew the fuse without calling upon the light and power company. By the use of the double-pole switch the heating units are absolutely disconnected from the line when the

Apartment-House, 3-Burner Tye "Hotpoint-Hughes" Electric Range.

switch is in the "off" position. This prevents any possibility of the heating units being electrically alive when the switch indicates that the current is off. The pointed switch-button shows at a glance the position of the switch—whether "high", "medium", "low", or "off"—even to a person across the room. This makes it unnecessary for the user to read any small markings on the switch to determine the degree of heat for which the switch is set. The button is so constructed that it may be turned backward without injury, and when released it resumes its correct position.

Electrically Heated Chocolate Warmer.

The new chocolate warmer just placed upon the market by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., consists of a sheet metal pan into which the chocolate to be melted is placed, and a hermetically sealed sheet metal retaining vessel which



Westinghouse Chocolate Warmer.

contains the heating element. The indicating re-heat snap switch, with 6 ft. of flexible cord, is also furnished.

The high position of the switch is used when it is desired to bring the chocolate to a working temperature in a short time; the medium heat when longer time is available, and the low heat for maintaining the chocolate at the proper working temperature.

The chocolate warmer may be mounted on the top of a table and the marble slab placed under the horizontal lips. It is customary to install the chocolate warmers in a row down the center of the table, so that two different dippers on opposite sides of the table can operate from each warmer. The control switch is mounted in a convenient position, but usually is placed at the side of the table. The constant uniform temperature of the electrically-heated chocolate warmer insures a consistent quality of high-grade product.

Hoover Booklet on How to Judge an Electric Cleaner.

Alert dealers who appreciate the worth of enduring, attractive sales literature prepared by progressive manufacturers to sell goods, rather than to save printing costs, will be interested to know that the Hoover Suction Sweeper Co. of North Canton, O., recently prepared a booklet that promises to set a new standard in the electric cleaner field. Copies of the booklet indicate that the "de luxe" title given it is warranted. The contents are the improved and richened text and illustration of Hoover's famous "How to Judge an Electric Cleaner."

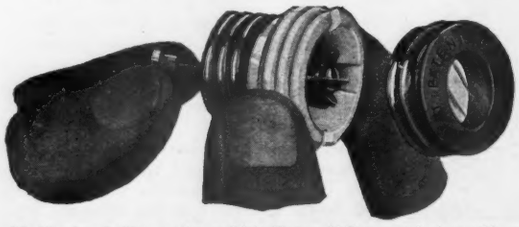
Prepared in its "de luxe" form this booklet is of definite value to any dealer who presents a copy to a prospective suction sweeper purchaser. The booklet's appearance, interest value and complete attractiveness insure its being read and kept as something of more value than the ordinary pamphlet, circular or broadside. All dealers, whether handling suction sweepers or not, will see in this booklet a gratifying indication of what the more progressive manufacturers are doing to keep their wares moving from retailers' floors.

New and Improved Type of H & L Refillable Fuse Plug.

The new H & L improved fuse plug being marketed by the H & L Refillable Fuse Plug Co., 954-56 West Adams street, Chicago, is the result of 20 yrs.' experience in fuse manufacturing, and is claimed to be the only refillable plug fuse using a tested fuse wire having a soldered connection. It is designed to provide accurate protection to lighting circuits at lower cost and with greater convenience than the old-style plug fuses. It makes it unnecessary to carry on hand a large supply of bulky and expensive fuses for renewal purposes—the H & L using over and over the same plug and being renewed when blown by inserting a new tested fuse wire refill only.

The manufacturer states that these renewal links cost but 2 cts. each and are made in from 3 to 30 amperes. A sufficient supply to keep on hand represents but a small investment. H & L improved fuse plugs are made on an Edison base type and will fit all fuse box sockets. They are used extensively by railroads, industrial concerns, large office buildings and in homes where cost, upkeep and general efficiency are prime factors.

According to the manufacturer, it is the work of a moment only to renew an H & L improved plug fuse; simply remove the fuse from the socket (as shown in the accompanying illustration), unscrew the metal cap which contains



Method of Removing Old Fuse Wire and Inserting New Refill.

New H & L Improved Refillable Fuse Plug.

the mica window, unloosen the binding screw which holds the blown fuse wire, remove the old fuse wire, insert the new refill from the bottom of the plug, giving it one turn around the binding screw and tighten the screw. The fuse is then ready for further service. The process is so simple that a child may follow it—a factor to be considered in the home where the housewife uses electrically-operated appliances, such as percolators, washing machines, vacuum cleaners, etc.

Two New Electrically-Driven Cream Separators.

D. M. Burrell & Co., Inc., of Little Falls, N. Y., has placed on the market two new cream separators, of the link blade type. Both separators are of high grade construction, with strength and simplicity of design. Due to the present day use of electricity on the farm, the machines have been designed especially for motor drive. The hand machines also have been designed so that they can easily be converted to electric drive within a very few minutes. Three extra parts only are needed for converting the drive, these being the motor, drive belt and pulley.

The total height of the new machines is less than 47 ins. and the crank is at the standard height of 32 ins. from the floor. On account of the simple gearing and the use of a high-grade annular ball bearing to support the bowl, the machine is unusually light-running and quiet. All high speed parts are in an oil tight case. Westinghouse motors are used on all motor-drive equipped separators manufactured by the Burrell company.

Robbins Conveying Belt. Co., 13-21 Park Row, New York City, has recently published a Handbook of Conveyor Practice that should prove valuable to engineers and draftsmen having to do with the planning or designing of conveyor installations for whose aid it is intended. Besides describing and illustrating installations of various kinds erected by the company, the book contains a group of tables governing capacities, power requirements, speeds of conveyors and similar matter, together with general data on conveyor practice. It contains 96 pages, size 6 by 9 ins., bound in heavy cover.

ACTIVITIES IN THE TRADE

Business Developments, Sales Agencies, Trade Literature and Miscellaneous Items Concerning Electrical Manufacturers and Allied Business Interests

Wichita Falls Electric Co., Wichita Falls, Tex., has filed notice of increase in its capital stock from $1,775,000 to $2,275,000 for expansion.

Metropolitan Edison Co., Reading, Pa., has arranged a bond issue of $500,000, the proceeds to be used for general operations, extensions, etc.

Syracuse Lighting Co., Syracuse, N. Y., has disposed of a preferred stock issue totaling $500,000, the proceeds to be used for general operations, extensions, etc.

Jeannin Electric Co., 110 Eleventh street, Toledo, O., manufacturer of electrical products, has acquired property for the erection of a new 1-story plant, estimated to cost $25,000.

New Bedford & Onset Street Railway Co., New Bedford, Mass., has arranged for a bond issue of $60,000, the proceeds to be used for additional working capital, expansion, etc.

Philadelphia Electric Co., Philadelphia, has disposed of a bond issue of $12,500,000, the proceeds to be used for general operations, plant extensions, betterments, etc. John B. McCall is president.

Haverhill Gas Light Co., Haverhill, Mass., has been granted permission by the Department of Public Utilities to issue stock for $117,000, the proceeds to be used for general operations, extensions, improvements, etc.

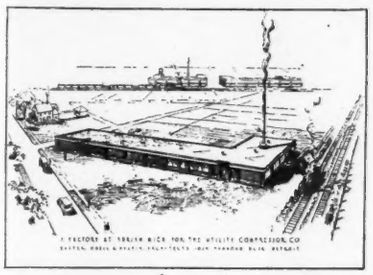
Ohio Generator Co., Red Lion, Pa., has been chartered under state laws to manufacture isolated electric power plant equipment, etc. A site has been selected and plans are nearing completion for a 4-story factory. Joseph Dise, Glen Rock, Pa., is architect, and Clayton C. Meads is treasurer.

Crescent City Electrical Co., Evansville, Ind., recently organized, has elected the following officers: President, R. P. Oblinger; vice-president and general manager, Chester E. Roberts; secretary, H. E. Rasmusson; treasurer, J. D. Meek. All of the officers with the exception of Mr. Roberts are from Indianapolis.

Southwestern Utilities Corp., Yonkers, N. Y., has been incorporated under Delaware laws, with a capital of $15,000,000, to operate electric and other utility properties. The incorporators are: D. I. Wilson, H. M. Brautigan and Chester A. Dunham, Yonkers. The company is represented by the United States Corporation Co., 65 Cedar street, New York City.

Art Lamp Manufacturing Co., Chicago, through E. C. Ruttenberg, has leased from Bernard A. Eckhart the entire 6-story building at 218-20 West Madison street, now occupied by the United States Rubber Co., for 20 yrs. from May 1, 1922, at a total net rental of $305,000. The Art Lamp Concern will use the entire building for offices, factory and stockrooms. It is now at 6-8 North Franklin street.

Utility Compressor Co., Adrian, Mich., manufacturer of the "Utility" electric refrigerator, compressor and vacuum pumps, has recently erected and moved into its new factory at Adrian. The company advises under date of Dec. 5 that it is getting squared around and



New Factory of Utility Compressor Co. at Adrian, Mich.

expects to be in production about the first of January. Its product is practically entirely sold a year in advance and the company states that it has applications for agencies on file from nearly every corner of the world. From now on it will push production as fast as possible and will open the different territories as rapidly as its increased facilities will permit. The company states that it is well located at its new plant (which is shown in the accompanying illustration), and has a large tract of land on which to expand as rapidly as required.

Benjamin Electric Manufacturing Co., 847 West Jackson boulevard, Chicago, has distributed within the past few weeks some attractive advertising material descriptive of its two-way plug and containing seasonable suggestions as to how this device can be advantageously used in the home for connecting up a boudoir lamp, curling iron and comb, reading lamp, portable heater and various other domestic appliances.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has issued circular No. 1642, the purpose of which is the education of persons in the intelligent selection of street-lighting fixtures. Through its publication the Westinghouse company proposes to aid those unfamiliar with street lighting in designating what types of street illumination fixtures are most suitable for conditions under consideration, what the illumination intensity should be and the correct layout to obtain the best results. The circular, known as "Westinghouse-Cutter Ornamental Posts and Tops"; is written in a style that will appeal to the person with little knowledge of the technical details of illumination. It is profusely illustrated with examples of posts and post tops and representative installations of these fixtures are also shown. The growth of the "City Beautiful" idea and the consequent demand for lighting systems of a more ornamental character, eliminating unsightly overhead equipment, have made this publication both timely and useful. The major consideration in street-lighting design, as pointed out in the circular, are the importance of the installation as a safety measure and the enhancement of abutting property values. These, as well as factors of mechanical and electrical design, have to be taken into account before correct specifications can be prepared to secure an ornamental lighting system suitable to a locality. The circular announces that engineers and others engaged in the preparation of reports and recommendations, covering a complete ornamental street-lighting system suitable to various requirements and insuring a maximum of efficiency combined with aesthetic charm, will have at their disposal the Illuminating Engineering Bureau of the Westinghouse companies which has been organized to carry on research work at the Illuminating Engineering Laboratories at East Pittsburgh, Pa., Bloomfield, N. J., and South Bend, Ind.

Bucyrus Co., South Milwaukee, Wis., has established a branch office at 19 Iddlesleigh house, London, S. W. 1, to take care of the growing needs of its foreign business. Until recently Bucyrus Co. was represented in Great Britain by G. F. West & Co. The new office in London is a direct branch of the parent company in America.

William Swindell & Bros., Jenkins Arcade building, Pittsburgh, have established an electric furnace department under the direct supervision of Frank W. Brooke, former vice-president and chief engineer of the Electric Furnace Construction Co., Philadelphia. The new department will be devoted to the design and sale of electric furnaces for melting steel, gray iron and nonferrous metals and also electric heating furnaces. A license to operate under the patents for nickel-chromium electric resistance elements has been granted this company.

Electric Furnace Construction Co., 908 Chestnut street, Philadelphia, has announced that the Ford Motor Co. has decided to install and has placed an order with the Electric Furnace Construction Co. for the largest electric melting furnace that has ever been designed or installed. The kv-a. capacity of the furnace is 9000, which is three times the size of any previously installed melting furnace. The furnace is designed with six electrodes and is of the "Greaves-Etchells" bottom conducting type, similar to those already installed and on order for the same company. This large furnace will be the principal melting unit of the new battery of electric furnaces being put down at the Ford company's River Rouge works.

PERSONAL MENTION

Biographical Sketches and Chronicle of Changes in Business Connections, Promotions and Other Personal News of the Industry

HERBERT S. EVANS, who has been associated with the General Electric Co. for 20 yrs., the past 10 yrs. as an executive in its foreign department, has left that company to become president of the "Bleh" Co. of New York City.

J. V. MONTGOMERY is now associated with the Westinghouse Electric & Manufacturing Co. as general foreman of electrical construction at the Hell Gate station of the United Electric Light & Power Co., New York City. Mr. Montgomery was an engineer in the electrical division of Dwight P. Robinson & Co., Inc.

HARRY F. DART has severed his connection with the Rice Institute of Houston, Tex., to accept a position as instructor in the electrical engineering school of Harvard University. During a part of the summer season Mr. Dart was engaged by the International Correspondence Schools of Scranton, Pa., on text-book editing work.

GEORGE S. ALLISON, comptroller of the Armour Institute of Technology, Chicago, was elected vice-president of the State Organization of University and College Business Officers, at its first meeting at Peoria, Ill., recently. Illinois was represented by 23 universities and colleges. The organization is to be permanent and will meet annually.

J. F. OWENS, vice-president and general manager and JOHN T. NAYLON, commercial agent, Oklahoma Gas & Electric Co., Oklahoma City, have been appointed members of a committee representing the Oklahoma Public Health Association and the Civitan Club respectively, to inform the public of the details of a bond issue for Oklahoma.

H. S. FOLEY, who for the past 4 yrs. has been the New York representative of the Compagnie Generale d'Electricite, of Paris, France, and its associated companies, has recently been appointed chief engineer of the Compania Hidroelectrica e Irrigadora del Chapala of Guadalajara, Mexico, and has now gone to that city to take up his new work.

A. W. COPLEY, general engineer of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., gave an interesting address at a recent meeting of the Pittsburgh Chapter of the American Institute of Electrical Engineers, on the subject of "Hydroelectric Engineering in California." The lecture was illustrated with a number of lantern slides.

A. I. CLIFFORD, secretary of the Indiana State Association of Electrical Contractors and Dealers, and sales manager of the Sanborn Electric Co., of Indianapolis, has resigned from his position to take up active work with the Utensils Co. of Fort Wayne, Ind., with sales office at 507 Odd Fellow building, Indianapolis. Mr. Clifford has had a long experience in the electrical business, starting in 1895 with the Anderson Railway & Light Co., afterwards being connected with the Railway & Light Co. of Kokomo, Ind., and master mechanic. In 1905 he moved to Decatur, Ill., and took charge of the shops of the Illinois Traction System. Mr. Clifford returned to

A. I. Clifford.

Indianapolis in 1915, taking a position with the Indianapolis Electric Supply Co. as a specialty salesman. In 1917 he moved to Fort Wayne, Ind., and organized the Luxam Electrical Supply Co., which was the electrical jobbing department of the Fort Wayne Oil & Supply Co. While in Fort Wayne he organized the Utensils Co. for the manufacture of the "Utenco" ironer. In 1920 Mr. Clifford took the position of sales manager for the Sanborn Electric Co., Indianapolis, and was appointed secretary of the Indiana State Association of Electrical Contractors and Dealers at its annual convention held in December at South Bend. In connection with the latter work he has been very active in increasing the membership, assisting in the organization of local branches in Fort Wayne, South Bend and Terre Haute. After Jan. 1 Mr. Clifford will devote his time to the C. M. C. Electric Sales Co., Indianapolis, which is a district sales office for the Utensils Co., Fort Wayne, Ind., Marion Insulated Wire & Rubber Co., Marion Ind., Getz Power Washer Co., Morton, Ill., and Northern Electric Co., Chicago. This will also afford more time for the association work which will be continued by Mr. Clifford.

NELSON S. MOORE has severed his connection with the Electric Power Equipment Corp. of Philadelphia and has opened an office in Chicago, under the firm name of Nelson S. Moore & Co., for the purpose of acting as exclusive district representative for manufacturers of high-tension electrical apparatus, offering both engineering and sales service.

CHAS. H. YOST, formerly with the General Electric Co., has become located with the Niagara, Lockport, & Ontario Power Co., Buffalo, N. Y.

PERRY L. HARRIS has left the Federal Shipbuilding Co., Kearny, N. J., to become connected with the Newberry Electric Corp. of Los Angeles.

H. P. SPARKES, formerly with the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has become located in the meter department of the West Penn Power Co., Pittsburgh.

WM. E. WICKENDEN has been transferred from the staff of the Western Electric Co. to that of the American Telephone & Telegraph Co., New York City, where he will be assistant vice-president. Before entering the service of the Western Electric Co., Mr. Wickenden was assistant professor of electrical engineering in the Massachusetts Institute of Technology.

W. E. FREEMAN has been appointed acting dean in the college of engineering of the University of Kentucky. For the past year Mr. Freeman has been supervisor of commercial training with the Westinghouse Electric & Manufacturing Co. at East Pittsburgh, Pa., but previous to that time was head of the department of electrical engineering in the University of Kentucky.

E. R. WEBER was appointed northern sales manager for the Bucyrus Co., and will have office in 1224 McKnight building. He succeeds J. N. Gawthorp, who becomes associated with E. G. Lewis in the New York branch of the business. Mr. Weber is well known to contractors in the northwest, having been connected with the engineering, manufacturing and sales department of the Bucyrus Co. for the last 15 years.

GEORGE DRAKE SMITH has been appointed general sales manager for trucks by the Steinmetz Electric Motor Car Corp., Baltimore. Mr. Smith is one of the best known figures in the truck field and has resigned as vice-president, director and general sales manager of the Winther Motor Truck Co., Kenosha, Wis., to go with the Baltimore concern. For a number of years Mr. Smith was with the General Vehicle Co., manufacturers of electric trucks, and later with the Edison Storage Battery Co., Orange, N. J., as manager of its electric vehicle department.

R. W. STOVEL has recently joined with H. A. BRINKERHOFF in the firm of Stovel & Brinkerhoff, engineers and constructors, New York City. Mr. Stovel is a graduate of McGill University, from which he received the degree of M. S. in 1900. He has had a wide experience in electrical and mechanical engineering, including a number of years with Westinghouse, Church, Kerr & Co., where he was managing engineer for some time. Mr. Brinkerhoff is a mechanical engineer who has had responsible charge of many large engineering and construction undertakings.

BUSINESS OPPORTUNITIES

News of Electrical Construction Projects in All Parts of the Country, Proposals Invited, Foreign Trade Openings and New Companies

EASTERN STATES.

Portland, Me.—Cumberland County Power & Light Co. has tentative plans under way for construction of an auxiliary steam-operated power plant on the side of the old dry dock, South Portland. The initial installation will comprise two steam turbo-generators, with capacity of about 14,000 hp., with provision for additional units at a later date.

South Windham, Me.—Windham Mfg. Co. has had plans prepared for the construction of a hydroelectric generating plant for local textile mill service. Arthur P. Safford, 66 Broadway, Lowell, Mass., is engineer.

Boston, Mass.—A loss of about $100,000 in line and other equipment has been sustained by the Edison Electric Illuminating Co. of Boston, as a result of the recent severe snow storm. Reconstruction and repair work will be placed under way at once. The company has closed down its plant at Wakefield temporarily, pending reconstruction of a transmission line used for service in this section.

Everett, Mass. — Malden Electric Co., Malden, Mass., has awarded a contract to the Hudson Construction Co., 6 Beacon street, Boston, for erection of a local electric substation at Broadway and Oakland street, estimated to cost $65,000.

Lowell, Mass.—The Boott Mills, Amory street, have plans nearing completion for erection of a 1-story hydroelectric generating plant for cotton mill service, estimated to cost $35,000. F. A. Flather is treasurer. Arthur P. Safford, 66 Broadway, is engineer.

Springfield, Mass.—Meekins, Packard & Wheat, Inc., Main street, has filed plans for extensions and improvements in the power house at its factory.

Windsor, Conn.—Farmington River Power Co. has plans under way for construction of a hydroelectric power plant, consisting of a 4-unit prime mover installation to total 12,000-hp. I. W. Jones, Milton, N. H., is engineer. E. W. Pelton is treasurer.

Buffalo, N. Y.—In a report tendered to the city council by electrical engineers engaged to investigate a proposed municipal electric power project, it is set forth that the plant and distributing system would cost approximately $20,000,000. A step-down substation at Buffalo is estimated at $66,355; substation for street-lighting, $452,000, and transmission line, $243,735. It is said that owing to the excessive cost the project will be held in abeyance.

Buffalo, N. Y.—A project is being developed for construction and operation of an electric railway line from Buffalo to Wellsville, using the abandoned road bed of the Buffalo & Wellsville railroad, owned by C. A. Finnegan, 339 Washington street, and instrumental in the proposed development. The poles and lines for the work are estimated to cost $200,000, equipment $125,000, and 10 booster electric stations $80,000.

Lancaster, N. Y.—Depew & Lancaster Light, Power & Conduit Co., Central avenue, is completing plans for construction of a transmission line, 12 mi. long, estimated to cost $25,000. A. R. Tremaine is company engineer.

Little Valley, N. Y.—Electric motors, power equipment, heating and ventilating apparatus, etc., will be installed in the 2-story high school building, to be erected by the Board of Education at a cost of $200,000. Martin C. Miller, Little Valley, is architect.

Long Island City, N. Y.—Lind Mathews, Inc., 243 13th avenue, has filed plans for construction of a 1-story power house at its factory.

New York, N. Y.—New York Edison Co. has taken a contract for service in the 16-story building on West 44th street, known as the Middle Temple building. The installation will comprise about 3000 lamps and motors totaling 150 hp.

New York, N. Y.—Considerable electrical equipment will be installed in the 3-story plant to be erected on Garrison avenue by the Yorkville Sash & Door Co., 338 East 95th street, estimated to cost $45,000. Plans are being prepared by the J. J. Gloster Co., 110 West 40th street.

New York, N. Y.—Considerable electrical equipment and mechanical apparatus will be installed in the baking plant to be erected by the General Baking Co., 45 East 17th street, on property recently acquired on West 144th street, estimated to cost $125,000. William Deininger is president.

New York, N. Y.—Considerable electrical and mechanical equipment will be installed in the 2-story plant to be erected at Fifth avenue and 141st street, by the Family Laundry Corp., 1471 Wilkins avenue, to cost $400,000.

New York, N. Y.—To conclude an expenditure of about $60,000,000 for extensions and improvements to properties, including electric subsidiaries, the Consolidated Gas Co., 130 East 15th street, has arranged for a bond issue of $20,000,000. The company operates the United Electric Light & Power Co., which is now building a large electric generating plant on the East river, near Hell Gate, to cost $10,000,000; and the Astoria Light, Heat & Power Co., Astoria, L. I. George B. Cortelyou is president.

New York, N. Y.—The Broadway Association is negotiating with the board of estimates for an appropriation for installation of a system of electric signal lighting for traffic regulation in the Times Square district.

New York, N. Y.—Daniel L. Turner, chief consulting engineer for the Rapid Transit Commission, 49 Lafayette street, has prepared estimates of cost showing that electrical and other operating equipment for the proposed river-to-river moving platform under 42d street, will cost about $3,000,000. The entire project is estimated to cost $7,500,000.

Ogden, N. Y.—Adams Basin Electric Light & Power Co. has filed application with the Public Service Commission for permission to construct an electric light and power plant at Ogden.

Rochester, N. Y.—Rochester Gas & Electric Corp. is making a large number of electric meter installations throughout the city, with the intention of having about 40,000 meters in service by the first of the year. The work is averaging as high as 100 meter installations a day.

Springville, N. Y.—The concrete dam on Cattaraugus creek, to be used for a hydroelectric power for municipal service, is nearing completion, with construction cost placed at $100,000. The power plant will be under the direction of Carl Felton, superintendent.

Camden, N. J.—A 1-story power house will be constructed in connection with the 3-story state normal school to be erected by the State Board of Education, Trenton, N. J., at Glassboro, near Camden, estimated to cost $725,000.

Atlantic City, N. J.—Boards of Freeholders of Atlantic and Camden counties, co-operating with the local Chambers of Commerce and State Highway Department, are considering construction of a "white way" street-lighting system on White Horse Pike, between Atlantic City and Camden. A joint appropriation is being arranged.

Jamesburg, N. J.—Electric motors and other electrical equipment will be installed in the 1-story cold storage plant to be constructed by the board of directors, New Jersey State Home for Boys. A. B. Mills, 142 West State street, Trenton, N. J., is architect.

Livingston, N. J.—Northfield Civic Association has concluded negotiations with the Public Service Electric Co. for the installation of a street-lighting system on Livingston avenue and other streets at Northfield center.

Newark, N. J.—Department of Streets and Public Improvements is completing installation of an improved arc-lighting system on Broad street from Lincoln park to Cross street. The lamps will be of 1500-cp. capacity.

Pleasantville, N. J.—Penn Motors Corp., 1714 North Broad street, Philadelphia, Hilton W. Scofield, head, will build a 1-story power plant in

connection with an automobile manufacturing plant at Pleasantvil'e. Bids will be taken at once. Charles H. Donehower, Pleasantville, is architect.

Roosevelt, N. J.—Public Service Electric Co. will install a commercial line system in the east railway section. The company is negotiating with the local borough council for a contract for new street-lighting.

Summit, N. J.—Considerable electrical equipment, including motors, power apparatus, heating and ventilating equipment, etc., will be installed in the 2-story high school building, to be erected by the Board of Education. P. W. Lyall, 372 Morris avenue, is secretary of the board.

Trenton, N. J.—The city commission will receive bids soon for installation of a dynamo and generating equipment for the municipal and electrical bureau.

Trenton, N. J.—Board of. Public Utility Commissioners has granted permission to the Raritan Valley Hydroelectric Electric Co. for permission to issue preferred stock in an amount of $20,500, to be used for extensions, improvements, etc.

Abbottstown, Pa.—Cumberland Valley Light & Power Co., Dillsburg, Pa., has completed installation of a local street-lighting system and will inaugurate service at once. Power will be furnished from the company's plant at Lemoyne, on the Susquehanna river.

Annville, Pa.—Considerable electrical equipment will be installed in the 4-story shoe manufacturing plant to be erected at Annville by the Greib Shoe Manufacturing Co., Palmyra, Pa., estimated to cost $750,000, including machinery.

Carlisle, Pa.—The street lighting committee, O. H. Sterner, chairman, is completing an investigation for improvements in the local street-lighting system, including extensions, and will soon make a formal report to the Chamber of Commerce.

Clearfield, Pa.—Penn Public Service Co. has disposed of a bond issue of $750,000, the proceeds to be used for general operations, extensions, improvements, etc.

Harrisburg, Pa.—The city council has been petitioned for improving the lighting system on North Cameron and other streets.

Lancaster, Pa.—New London Electric Co. has been incorporated with a nominal capital of $5000, to operate an electric light and power system. The incorporators are John H. Ware, Jr., Oxford; R. F. Simons and J. Guy Eshleman, Lancaster, Pa.

McKeesport, Pa.—Electric motors, power equipment, heating and ventilating apparatus, etc., will be installed in the proposed high school to be erected by the Board of Education, estimated to cost $300,000.

Middleton, Pa.—A. S. Kreider Co., Wilson street, is planning to rebuild the portion of its power house recently damaged by fire.

New Bethlehem, Pa.—West Penn Power Co., Pittsburgh, has entered into a contract with the borough council for installation and operation of a new street-lighting system for a period of 5 yrs. A similar contract for operation of an existing system at West Brownsville, Pa., has been made with the local council for a like period. The contracts have been approved by the Public Service Commission.

Philadelphia, Pa.—Bureau of Water, City Hall, has awarded a contract to the Seneca Co., Philadelphia, for furnishing and installing electrical equipment at the Shawmont and Roxborough water works stations, at a cost of $140,854. Ross Electric Construction Co. Philadelphia, has received a contract for installation of electric light and power circuits in a 1-story machine repair shop to be constructed, at a cost of $8200.

Philadelphia, Pa.—Germantown Intermediate Department, United States Government, will commence the erection of an addition to its local power house at 21st and Oregon streets.

Baltimore, Md.—Canton Co., 3d and 16th streets, has filed plans for the erection of a 1-story power house. Work will be placed under way at once.

Hagerstown, Md.—The board of street commissioners has directed A. B. Grubmeyer, superintendent of the municipal electric plant, to prepare plans and specifications for erection of an addition. An engineer will be selected to assist in the work. It is proposed to inaugurate construction at an early date.

Washington, D. C.—William J. Barker, care of Wade H. Ellis, 504 Southern building, has applied to the Federal Power Commission for a preliminary permit to construct a dam in Grand river near Kremmling, Grand county, Colo.; reservoir with a capacity of 1,030,000 acre-ft., and tunnel to power house, developing 57,000 hp.

Petersburg, W. Va.—Community Power Co. has made application to the Public Service Commission for permission to construct a dam and hydroelectric power plant on the south branch of the Potomac river, near Petersburg. The proposed station will be used for light and power service in the south branch valley section. A. J. Welton, Petersburg, represents the company.

Winston-Salem, N. C.—Board of Education will build a power plant in connection with a 4-story academic arts school building. The building contract has been let to the duPont Engineering Co., duPont building, Wilmington, Del.

Marion, S. C.—The city will vote Jan. 17 on the issuance of $100,000 worth of bonds for a "white way," sewers, paving, etc. Address the mayor.

Augusta, Ga.—The city council is considering tentative plans for construction of a hydroelectric generating plant on the canal, about 2 miles from the city, to be used for local commercial service, as well as cotton mill and other industrial operations. The initial capacity will total about 12,000-hp., with project estimated to cost $1,500,000. A bond issue about $1,000,000 in excess of this amount is planned to provide for later expansion.

Springfield, Ga.—The town council is having plans prepared for installation of a municipal electric light and power plant. S. S. Ingram is president and general manager.

Lake City, Fla.—Bids will be received on the following apparatus: One poppet valve automatic uniflow engine of 300-hp. when operating at 125 lbs. steam pressure; electric generator; a-c. electric generator of 240 kv-a. capacity; one switch consisting of 60 panels, etc. Address C. E. Hurst, city manager.

Sebring, Fla.—The common council is considering operation of a municipal electric power plant.

NORTH CENTRAL STATES.

Toledo, O.—A 30,000 kw. turbine will be installed in the Acme Power plant on the East Side at a cost of $1,000,000. The first unit of the power belt will be 12.8 mi. long and will extend from the Acme plant to the Toledo & Western crossing of the terminal at Fitch station. Work will be started in April. Address Fred Derge, head of department.

Erie, Mich.—Under the terms of a contract entered into with the Toledo Edison Co., a $5000 substation will be erected at Stop No. 29 on the Toledo Beach line and power lines run from there to Erie.

Melvin, Mich.—The question of issuing municipal light bonds will be voted upon. Address the village clerk.

Frankfort, Ind.—Contruction cost of the new city electric light and power plant, estimated at $250,000 by C. D. Lyon, Cincinnati, consulting engineer, may reach $305,000. The issuance of $175,000 in bonds for the construction of the plant was recently authorized by the Indiana Public Service Commission. As the city was to be bonded to its legal limit by this issue, other means were necessary for obtaining the remaining $75,000. Through the agency of the Chamber of Commerce, plans were laid for raising the deficit on a note signed by 153 local residents.

Huntington, Ind. — Indiana Public Service Commission has issued an order authorizing the Bippus Utilities Co. of Huntington to issue $150,000 in securities to be used in taking over the electric plant of the Browne-Mills Electric Co. at North Manchester, Ind., and to construct a new plant and make improvements. The company is authorized to sell $50,000 of common stock, $50,000 of 7 per cent preferred stock and $50,000 of first mortgage 20-year gold bonds, bearing interest at 7 per cent and payable semi-annually. The commission also approved sale of the North Manchester plant of the Browne-Mills Electric Co. to the Bippus Co., which was entered into July 1, 1921, the sale price being $75,000.

Indianapolis, Ind.—Orange County Public Service Co. has increased its capital stock from $86,000 to $200,000.

Michigan City, Ind. — Haskell & Barker Car Co. will build a 1-story power plant in connection with erection of a foundry at its railroad car works, estimated to cost $500,000. Frank D. Chase, Inc., 545 North Michigan avenue, Chicago, is engineer.

Winchester, Ind.—A power house

will be constructed by the Storms Novelty Works in connection with the erection of a 2-story woodworking plant, now in course of building.

Edwardsville, Ill. — Business men have formed a committee for improvement of the street lighting system. Address Henry A. Dierkes, president, chamber of commerce.

Fairbury, Ill.—The council is considering establishing a municipal light plant. Address Mayor Foster.

Springfield, Ill.—Officials of the Illinois Power Co., a newly organized concern, have filed a petition with the Illinois Commerce Commission for permission to take over the private utility companies operating in Springfield, DeKalb, and Sycamore. The new company has also asked permission to issue $5,000,000 in bonds and $5,025,000 in capital stock.

Kenosha, Wis.—The property owners on Park avenue have petitioned for better lighting. Address the city clerk.

Merrill, Wis.—The city council has accepted the proposition of the Wisconsin Valley to supply festoon electric lights in the business steets.

Shell Rock, Ia.—Shell Rock Electric Light & Power Co. has been incorporated with a capital of $300,000. Address C. L. Gotshall, president, 208 South LaSalle street, Chicago.

Columbia, Mo.—The common council is planning extensions and improvements in the municipal electric power plant and waterworks system to cost about $40,000.

Jamesport, Mo.—The common council has approved plans for construction of a transmission line to Trenton, Mo., to connect with the system of the Trenton Gas & Electric Co., which will furnish local electric service. It will cost about $17,000.

Watertown, S. D.—Bids will be received Jan. 12 for a distribution system covering street and commercial wiring. Address A. J. Mueller, superintendent of the electric light plant.

SOUTH CENTRAL STATES.

Walnut Grove, Tenn.—Home Electric Co., recently organized to operate a local light and power system, is plannning construction of a transmission line, about 4 mi. long. H. E. Dagley is president, and John Stein, treasurer.

Mobile, Ala. — The board of city commissioners is considering plans for construction of a municipal electric light and power plant.

Bogalusa, La. — Considerable electrical equipment will be installed in the proposed plant addition to be constructed by the Bogalusa Paper Co., estimated to cost $1,000,000, including machinery. W. H. Sullivan is president.

New Orleans, La. — New Orleans Railway & Light Co. is planning extensions and improvements in its plant and system to cost $1,000,000. The company will install facilities to accommodate about 2500 new consumers.

New Orleans, La.—Inasmuch as the electric bills of the Charity hospital amount to approximately $12,000 a year and that it would only cost $25,000 to install an electric plant, Charles Cowles, member of the board of administrators, advocated installation of a plant.

Little Rock, Ark.—Arkansas Railroad Commission has granted a permit to the Caddo River Power & Irrigation Co. for construction of a hydroelectric project in Clark county. It is proposed to construct the dam at a point in the mountains 9 mi. above Arkadelphia, on the Caddo river. The dam will be 100 ft. high and will produce 6000 kw. The company has a capital of $1,000,000 and H. L. Remmel is president. About 5000 acres of land will be inundated but it is almost wholly undeveloped. The project is one of a series that is being undertaken in the state for the purpose of developing power for distribution over wide areas.

Hartshorne, Okla.—The common council is planning installation of an electric lighting system.

Redrock, Okla.—The common council is considering plans for the establishment of a municipal electric power plant.

El Paso, Tex. — El Paso Electric Railway Co. is planning construction of an extension to its transmission lines, about 9 mi. in length.

Streetman, Tex.—Chamber of Commerce has authorized preparation of plans and estimates of cost for a municipal electric lighting plant.

Wellington, Tex.—The city council has ordered an election to determine whether or not the city should issue $50,000 worth of bonds for the purpose of installing a municipal power and light plant. Plans are also being made for an election on $100,000 worth of bonds for paving.

WESTERN STATES.

Portland, Ore. — Plans are being completed by the Portland Light & Power Co., to issue and sell locally $1,000,000 worth of prior preference 7% stock to aid in financing its hydroelectric power development at the headquarters of the Clackamas river. Address Franklin T. Griffith, president.

Tacoma, Wash. — Petitions have been signed and the Tacoma Avenue Improvement Club is discussing installation of ornamental street lamps on Tacoma avenue. Address chairman of the club.

Chihuahua, Mexico.—R. Lopez Negrete of Durango and associates have taken over the holdings of the Chihuahua Electric & Railway Co., which embraces the local electric light and power plant and street railway system. It is stated that the new owners will invest a considerable sum of money in new machinery and equipment and in rehabilitating the street railway lines. Several extensions of the system are under consideration. Juan A. Creel was the principal stockholder of the Chihuahua Electric & Railway Co. The property suffered heavy losses during the protracted revolutionary period, but with the return of more settled conditions its prospects for doing a good business are considered favorable. Jose Asunsolo, formerly of El Paso, has been appointed general manager of the company.

INCORPORATIONS.

Worcester, Mass.—Sandberg-Sheppard Co. Capital, $100,000. To manufacture electrical appliances. Incorporators: Herbert V. Sheppard, president, and Charles E. Sandberg, treasurer.

New York, N. Y.—Korena Business Developer Co. Capital, $100,000. To manufacture electrical devices. Incorporators: J. D. Korena, R. Perry and L. Berrington. J. A. O'Brien, 1402 Broadway, represents the company.

Brooklyn, N. Y.—Hewitt & Richardson, Inc. Capital, $10,000. To manufacture radio and other electrical equipment. Incorporators: J. K. Hewitt, G. D. Murray, Jr., and A. P. Nevin, 30 Church street.

Buffalo, N. Y.—Diamond Wire Co. Capital, $300,000. To manufacture electrical wires and cables, etc. Incorporators: Herbert T. Dyett, Frank M. Potter and Harry W. Barnard, all of Rome, N. Y.

New York, N. Y.—New Century Storage Battery Co. Capital, $250,000. To manufacture storage batteries. Incorporators: F. Marotta and Frank Pascarella, 38 Park Row.

Atlantic City, N. J.—Doering Electric Specialty Co. Capital, $20,000. To manufacture and deal in electrical supplies. Incorporators: Joseph Milligan, Arch Davis and Oscar F. Ross, 206 Humphries building.

Philadelphia, Pa.—Electrical Home Equipment Co. has been organized to manufacture electrical specialties. Oswald M. Milligan, Stephen Girard building, represents the company.

New York, N. Y.—New Century Storage Battery Co. Capital, $250,000. To manufacture electric storage batteries. Principal incorporator: Frank Pascarella, 38 Park Row.

Wilmington, Del.—S. C. Tarrant Co. Capital, $50,000. To manufacture electric lighting fixtures, etc. The company is represented by the Colonial Charter Co., Ford building.

Wilmington, Del.—American Electric Equipment Co. Capital, $2,000,000. To manufacture electrical products. The company is represented by the Capital Trust Co., Dover, Del.

Vincennes, Ind.—Brewer Auto Electric Co. Capital, $25,000. To deal in electrical equipment. Incorporators: H. L. Brewer and G. W. and E. R. Purcell

FOREIGN TRADE.

[Addresses of firms referred to in these trade opportunities may be obtained by writing to the Bureau of Foreign and Domestic Commerce, Washington, D. C., or its branch and local co-operative offices. Request for each opportunity should be on a separate sheet and the file number given.]

Electrical Appliances (405)—A merchant in India desires to secure an agency for the sale of electrical appliances, such as lamps, wires, switches, ceiling roses and lamp holders. Reference.

Electrical Supplies (412)—A merchant in Italy desires to purchase or secure an agency for the sale of electrical supplies. Correspondence should be in Italian. References.

FINANCIAL NEWS

Comment on the Financial Outlook in the Electrical Industry, New Securities, Reports of Earnings, Dividends and Utility Stocks

Will Vote on Plan to Issue Mortgage Bonds.

Stockholders of the Columbus Railway, Power & Light Co. on December 23 will vote on the plan calling for the authorization of and sale of $5,000,000 general mortgage bonds, the execution and delivery of a new general mortgage to secure these bonds, and the pledging of $6,000,000 refunding and extension sinking fund 5% bonds due in 1940 as a further security for the new $5,000,000 of general mortgage bonds.

Manila Electric Railroad & Lighting Corp.

	1921.	1920.
September gross	$ 31,959	$ 280,319
Net after taxes	130,453	94,296
Total income	130,706	94,329
Surplus after charges	88,225	62,505
12 mo. gross	3,696,188	3,220,117
Net after taxes	1,452,180	1,052,083
Total income	1,454,192	1,054,320
Surplus after charges	945,044	665,227
Balance after preferred dividends	645,044	365,227

Mississippi River Power Co.

	1921.	1920.
September gross	$ 238,092	$ 244,787
Net earnings	180,337	197,015
Surplus after charges	80,146	97,174
12 mo. gross	2,782,567	2,722,388
Net earnings	2,052,884	2,144,742
Surplus after charges	818,102	934,581

Nashville Railway & Light Co.

	1921.	1920.
September gross	$ 321,832	$ 279,189
Net after taxes	81,881	9,376
Surplus after charges	43,047	*31,072
12 mo. gross	3,807,798	3,564,495
Net after taxes	798,847	684,644
Surplus after charges	325,060	205,030
Balance after preferred dividends	200,060	80,030

Nebraska Power Co.

	1921.	1920.
September gross	$ 264,014	$ 229,733
Net after taxes	96,473	48,204
Total income	97,878	50,579
Surplus after charges	45,469	19,950
12 mo. gross	3,111,004	2,768,009
Net after taxes	972,195	888,252
Total income	1,065,720	964,129
Surplus after charges	542,460	575,045
Balance after preferred dividends	332,460	365,045

Newport News & Hampton Railway, Gas & Electric Co.

	1921.	1920.
September gross	$ 201,619	$ 246,368
Net after taxes	35,618	30,150
Total income	36,147	30,161
Surplus after charges	7,608	922
9 mo. gross	2,037,185	2,070,952
Net after taxes	412,350	279,746
Total income	415,300	280,849
Surplus after charges	156,722	28,721

Northern Texas Electric Co.

	1921.	1920.
September gross	$ 275,320	$ 324,698
Net earnings	97,082	119,105
Surplus after charges	71,759	94,200
12 mo. gross	3,737,090	3,867,883
Net earnings	1,274,472	1,487,203
Surplus after charges	970,251	1,189,197

Pacific Power & Light Co.

	1921.	1920.
September gross	$ 266,902	$ 246,813
Net after taxes	123,316	114,901
Total income	124,250	123,319
Surplus after charges	66,451	70,256
12 mo. gross	2,950,164	2,501,976
Net after taxes	1,324,345	1,124,074
Total income	1,389,667	1,140,517
Surplus after charges	726,462	595,663
Balance after preferred dividends	490,212	399,994

Banking Syndicate Buys Utilities Bonds.

The American Light & Traction Co. has sold to a banking syndicate $3,800,000 30-yr. 6% bonds of the San Antonio Traction, Light & Power Co. and $1,800,000 30-yr. 6% bonds of the St. Paul Gas Light Co. Both issues are callable after 10 yrs. at 110.

Puget Sound Power & Light Co.

	1921.	1920.
September gross	$ 763,497	$ 816,561
Net earnings	311,077	346,958
Surplus after charges	165,326	187,952
12 mo. gross	10,148,154	9,737,784
Net earnings	4,209,358	4,053,483
Surplus after charges	2,376,425	2,197,770

Bangor Railway & Electric Co.

	1921.	1920.
September gross	$ 122,586	$ 110,863
Net after taxes	49,572	46,657
Surplus after charges	25,965	25,382
12 mo. gross	1,398,263	1,212,172
Net after taxes	538,167	455,730
Surplus after charges	258,782	194,397
Balance after preferred dividends	152,274	89,397

Republic Railway & Light Co.

	1921.	1920.
September gross	$ 536,306	$ 721,031
Net after taxes	168,233	113,631
Total income	193,638	134,612
Surplus for dividends	32,207	13,269
12 mo. gross	7,727,959	7,905,420
Net after taxes	1,697,661	1,638,576
Total income	2,164,986	1,974,874
Surplus for dividends	272,447	539,903

Central States Electric Co. and Subsidiaries.

Earnings for the 12 mos. ended Oct. 31, 1921, and comparisons with 1920 are as follows:

	1921.	1920.
Gross	$13,156,629	$12,324,664
Net after taxes	4,285,930	3,287,649
Total income	4,416,330	3,328,597
Surplus after charges	814,161	559,716
Balance after preferred dividends	496,130	241,685

Commonwealth Power, Railway & Light System.

	1921.	1920.
October gross	$2,644,408	$2,702,796
Net after taxes	910,016	724,698
Surplus after charges	276,046	117,639
10 mo. gross	25,749,569	25,545,042
Net after taxes	8,388,672	7,081,187
Surplus after charges	2,143,491	1,267,570

Detroit Edison Co. and Subsidiaries.

	1921.	1920.
October gross	$2,070,123	$2,009,547
Net after taxes	575,572	460,450
Surplus after charges	273,179	224,712
10 mo. gross	18,848,999	17,483,765
Net after taxes	4,793,474	3,228,923
Surplus after charges	1,966,634	1,262,915

Philadelphia Co. and Subsidiary.

	1921.	1920.
October gross	$ 623,758	$1,062,726
Net after taxes	61,566	353,152
10 mo. gross	8,150,522	12,048,575
Net after taxes	1,999,897	4,441,474

Tennessee Railway, Light & Power Co.

	1921.	1920.
September gross	$ 549,216	$ 513,370
Net after taxes	200,106	121,115
Surplus after charges	68,729	*9,179
12 mo. gross	6,599,223	6,228,778
Net after taxes	2,149,198	2,125,925
Surplus after charges	606,680	586,182

*Deficit.

Dividends.

	Term.	Rate.	Payable.
Am. Pr. & Lt., pf.	Q	1.50%	Jan. 2
Bangor Ry. & Elec., pf.	Q	1.75%	Jan. 1
Buffalo Gen. El., com.	Q	2.00%	Dec. 31
Dayton Pr. & Lt., com.	Q	$4.00	Dec. 20
Dayton Pr. & Lt., pf.	Q	$1.50	Jan. 2
Detroit Edison, com.	Q	2.00%	Jan. 16
Eastern Tex. El., pf.	S.A.	$3.00	Jan. 3
Pacific Gas & El.	Q	$1.25	Jan. 16
Springfield Ry. & Lt.	Q	1.75%	Jan. 3
United Gas. Imp., com.	Q	1.00%	Jan. 14
United Gas Imp., pf.	Q	1.75%	Mar. 15
Utilities Secur., pf.	Q	1.75%	Dec. 27
Western Elec., com.	Q	$2.50	Dec. 31
Wisconsin Edison	Q	$2.50	Dec. 31

WEEKLY COMPARISON OF CLOSING-BID PRICES OF SECURITIES OF LEADING ELECTRICAL COMPANIES.

Quotations furnished by F. M. Zeller & Co., Rookery Bldg., Chicago.

	Div. rate. Per cent.	Bid Dec. 12.	Bid Dec. 17.
Public Utilities—			
Adirondack Electric Power of Glens Falls, common	6	12	12
Adirondack Electric Power of Glens Falls, preferred	6	83	82
American Gas & Electric of New York, common	..	126	122
American Gas & Electric of New York, preferred	6	43	46
American Light & Traction of New York, common	..	108	109½
American Light & Traction of New York, preferred	6	89	90
American Power & Light of New York, common	4	69	77½
American Public Utilities of Grand Rapids, common	6	79	82
American Power & Light of New York, preferred	..	6	6
American Public Utilities of Grand Rapids, preferred	..	15	15
American Telephone & Telegraph of New York	9	115½	117
American Water Works & Elec. of New York, common	..	6½	5
American Water Works & Elec. of New York, particip	7	16	16
American Water Works & Elec. of New York, 1st preferred	..	59	60
Appalachian Power, common	..	6	5½
Appalachian Power, preferred	7	49	49
Cities Service of New York, common	+extra	221	209
Cities Service of New York, preferred	6	59½	59
Commonwealth Edison of Chicago	8	114½	113
Comm. Power, Railway & Light of Jackson, common	..	14	12½
Comm. Power, Railway & Light of Jackson, preferred	6	34½	33
Federal Light & Traction of New York, common	..	9	8
Federal Light & Traction of New York, preferred	..	63	64
Northern States Power of Chicago, common	..	69	89
Northern States Power of Chicago, preferred	ex.div.7	82	87
Pacific Gas & Electric of San Francisco, common	..	66	66
Public Service of Northern Illinois, Chicago, common	7	81	81
Public Service of Northern Illinois, Chicago, preferred	6	81	81
Standard Gas & Electric of Chicago, common	..	13½	16¾
Standard Gas & Electric of Chicago, preferred	8	39	41½
Tennessee Railway, Light & Power of Chattanooga, common	..	½	½
Tennessee Railway, Light & Power of Chattanooga, preferred	6	4¾	5
Western Power of San Francisco, common	..	29	..
Western Union Telegraph of New York	..	92½	91
Industrials—			
General Electric of Schenectady	8	138	140½
Westinghouse Electric & Mfg. of Pittsburgh, common	7	49½	50¾